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EVALUATION OF THE ROLE OF POLICE IN THE EMS SYSTEM

FINAL REPORT

June 1978

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EVALUATION OF THE ROLE OF POLICE IN THE EMS SYSTEM

EXECUTIVE SUMMARY

Grant No. R18 HS 01767

by

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INTRODUCTION

This executive summary is intended to highlight the activities and results of the two and one-half year Emergency Medical Services (EMS) research project entitled "Evaluation of the Role of Police in the EMS System" conducted by the Health Systems Research Center (HSRC) at Georgia Tech in cooperation with the DeKalb County Police Department (DKPD). Included in this summary is a description of the basic studies performed in the project as well as a description of selected results of project activities. Also included are various recommendations by project staff made on the basis of these results.

The purpose of this project was to evaluate the performance of trained police officers to provide initial stabilizing care in conjunction with an existing EMS system. This rapid response of police officers to medical emergencies for the purpose of administering first aid procedures prior to the arrival of an ambulance was referred to in the project as the medical aid vehicle (MAV) concept. The system studied in DeKalb County consisted of the simultaneous response of police officers in high performance police cars and of EMTs in EMS units (modern ambulance vehicles) operated by the DeKalb County Fire Department. This project was pursued through the following objectives:

- To analyze an existing police trauma-management training program for the purpose of describing resuscitative skills being taught to participants in the program.
- To select each task, or group of tasks, from the existing training program, which should be performed for specific, individual medical emergencies.
- To determine the frequency with which police perform specific MAV tasks and other non-medical tasks in an operational setting.
- To assess the relationship between police performance of MAV skills and performance of "traditional" duties associated with law enforcement.
- To measure attitudes and perceptions of police and the public in regard to the police MAV concept.

Several studies related to the project objectives are summarized in the following sections:

SUMMARY OF STUDIES CONDUCTED

Major studies conducted included an examination of police and EMS unit response times, dispatch delays, police intervention period,[1] officer performance in first aid , and officer attitudes and perceptions concerning first aid delivery. In conducting these studies, information on almost 4,000 cases was gathered and analyzed using data collected during the period from May 1, 1976 to April 30, 1977. Information was obtained primarily from the DKPD First Aid Report as completed by officers responding to medical emergencies, radio room complaint cards, fire department EMS run reports, and the attitude questionnaire administered to all uniformed police officers.

Response Time Study

In order to determine how quickly police officers respond to medical emergencies, the response times for all medically-related calls were determined. Response time in this context was the time from receipt of call to arrival upon the scene. These times were compared to corresponding response times of EMS Units.[2] Response time information was analyzed with respect to the type of emergency (e.g., crime scene versus traffic accident), location, origin of call, and other factors.

Dispatch Delay Study

A "dispatch delay" represents a difference in time between dispatch of a police unit and the dispatch of an EMS unit. In theory, both units are dispatched simultaneously and therefore no dispatch delay exists. However, during the course of the research, police officers perceived that dispatch delays were both frequent and lengthy. This was also verified by project staff in study activities.

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[1]The police intervention period (PIP) is the time interval in which the officer is on the scene prior to the arrival of the EMS Unit.

[2]Due to lack of response time information, other fire vehicles were not included in the analysis although they are dispatched to selected emergencies.

Obviously, significant dispatch delays reduce the amount of time that a police officer is able to perform first aid since it delays his arrival on the scene. Accordingly, police and EMS dispatch times were compared in order to determine the extent to which dispatch delays influence police response to medical emergencies.

Police Intervention Period (PIP) Study

The PIP is the time in which the police officer is on the scene prior to the arrival of the EMS Unit. The PIP represents the amount of time that the police officer has an opportunity to perform first aid. Thus, the length of the PIP has significant bearing on the real potential for utilizing police as first responders to medical emergencies.

The types of PIPs--"actual" and "potential"--were calculated in this study. The actual PIP was determined by comparing the arrival time of the police unit with that of the EMS unit. Since the actual PIPs were sometimes low due to dispatch delays, the potential PIP was determined by assuming that the EMS and police units could have been dispatched simultaneously. The potential PIP, therefore, was calculated by taking the difference between the EMS response time and the police response time.

Officer Performance Study

First aid tasks that should be performed by police at the scene for specific emergency medical conditions were identified. The identification process included an analysis of the DKPD first aid training course to identify the medical conditions that the officers were trained to recognize and treat, as well as the specific tasks that they would be expected to perform for individual patient conditions. These tasks and conditions were then weighted in terms of relative importance through the use of a panel of experts (EMTs and EMT instructors) in a structured group process approach. Using these judgements, a task oriented performance measure that allows for adjustments according to various types of medical emergencies was developed. This measure is referred to as the first aid performance index (FAPI) and is numerically expressed in terms of a ratio of weighted tasks performed to weighted tasks required.

A measure similar to the FAPI was also developed in much the same manner. This scale, called the Police Task Performance Index (PTPI) includes both tasks and conditions at the scene affecting the performance

of these tasks. These tasks and conditions were described and developed via literature reviews, interviews with police department personnel, direct on-the-scene observations of actual performance of police officers, and through two types of structured group processes. Through one of the group processes using a police panel, police-related tasks were weighted numerically in accordance with their perceived importance in four categories of medical emergencies--medical emergency only, crime scene with injuries, traffic accident with injuries, and a situation with injuries involving a threat to public safety.

These two measures provide a quantitative estimate of police performance during a medical emergency. These measures were also examined in relation to various other factors including the attitudes of individual police officers in regard to performing first aid, the intervention period during which the officer conceivably had time to perform first aid, assess injury severity, category of emergency, and others.

Attitudinal Studies

An examination of the attitudes and perceptions of police officers in performing first aid was conducted through the administration and analysis of questionnaires given to the officers of the uniform division. These questionnaires included information on six dimensions associated with the delivery of first aid: (1) satisfaction with specific activities involved in delivery of first aid; (2) evaluation of first aid training; (3) beliefs concerning outcome of police first aid; (4) attitudes regarding first aid as a police activity; (5) perception of superior officer attitudes concerning first aid duties; and (6) general job satisfaction.

SELECTED RESULTS

Included in this section are summaries of selected results of the various studies conducted throughout the project. A more detailed discussion and interpretation of these and other project findings is presented in a comprehensive final project report.

Response Time Study

- The police units respond to medical emergencies significantly quicker than EMS units. The mean response time for police was 5.2 minutes, whereas the mean for EMS was 7.2 minutes. These results are not surprising since there are nine EMS units in operation as opposed to about

eighty police units at any one time. It is also obvious that a high performance police car can have a significantly lower response time than an EMS unit.

- Police response consistently leads EMS response by about 2 minutes throughout the range of response times. For example, about one-third of the calls have response times of 3 minutes or less for the police, whereas one-third of the calls have response times of 5 minutes or less for EMS. Seventy-nine percent of the calls have response times of 7 minutes or less for the police department, and 9 minutes or less for EMS.
- Police response time is significantly quicker for traffic accidents (mean response time = 4.2 min.) than for cases which are solely medical in nature (mean response time = 5.3 min.). The mean EMS response times for both traffic accidents and medical emergencies is approximately equal to 7 minutes. Thus, there is a definite difference in response to traffic injuries versus other medical emergencies for police, but not EMS.
- Both police response time and EMS response time are approximately 1 minute longer in the sparcely-populated areas of the county than in urban areas.
- Police response time to traffic accidents which are reported to the fire department (and then transferred to the police department) are very low (mean response time = 3.9 min.). It appears that in these calls, the police officers are making a special effort to arrive at the scene when they know that the fire department is enroute to the call.

Dispatch Delay Study

- EMS units are dispatched prior to police units approximately 85 percent of the time. On only about 10 percent of the cases were the police dispatched first.
- In those cases in which the police arrived on the scene prior to EMS, the EMS unit was still dispatched first in about two-thirds of the cases.
- The mean dispatch delay (the average delay between dispatch of the EMS unit and dispatch of the police unit) was 2.83 minutes. In those cases where the police unit arrived on the scene prior to the EMS unit, the mean dispatch delay was only 0.3 minutes.
- There is a significant difference between dispatch delays when the call comes directly to the police department (dispatch delay = 0.02 min.) versus the fire department (dispatch delay = 3.72 min.). Thus, it appears that the police department is immediately notifying the fire department of medically-related calls whereas a significant delay occurs in the transfer of calls from the fire department to the police department.
- This research has not attempted to speculate as to the reason why there is a significant dispatch delay in transferring calls from fire department to police department, whereas that delay does not exist in transferring calls from the police department to the fire department. It has

been found, however, that many police officers feel that the fire department is purposely holding calls to allow the EMS unit to arrive on the scene prior to the police unit. If this is the reason, or one of several reasons, then the concept of the police first responder is seriously limited in this setting.

Police Intervention Period Study

- The mean actual PIP is -0.98 minutes. The mean potential PIP is 2.0 minutes. This indicates that given all emergency calls, the EMS unit was on the scene an average of 1 minute prior to the police arrival, whereas the police could have been on the scene 2 minutes prior to EMS arrival.
- The police arrived first on the scene in 35 percent of the cases. Had the police and EMS units been dispatched simultaneously, the police would have arrived first in 66 percent of the cases.
- According to the potential PIP calculations, the police could have been on the scene before the ambulance arrived for 3 minutes or longer in half of the cases and 4 minutes or longer in one-fourth of the cases.
- The magnitude of the potential PIP indicates that the MAV concept may have significant potential in terms of providing quicker response in medical emergencies. However, the actual PIP indicates that the concept is not being utilized to its fullest potential in DeKalb County.

Police Performance Measures

- In analyzing 1348 cases in which the police arrived prior to the EMS unit, the major conditions encountered were pain (530 cases), minor to moderate bleeding (267 cases), and abnormal or difficult breathing (279 cases). Other frequent conditions included chest pain (175 cases), abnormal pulse (147 cases), semi-consciousness (147 cases), pale/bluish color (162 cases), dizziness/fainting (183 cases), and fractures (113 cases).
- Of the specific tasks performed, calm and reassure was the most frequent (365 cases). Other frequently encountered tasks included checking for pulse, checking for breathing, positioning victim for comfort, keeping victim warm, a variety of bleeding control tasks, and establishing and maintaining the airway. It is also noted that there were 12 cases of CPR performed, and 8 cases of various artificial respiration techniques.
- Although 113 fractures were reported, no splints were applied.
- The vast majority of first aid tasks which were performed were those not requiring first aid equipment. For example, tasks such as airway maintenance, artificial respiration, CPR, calm and reassure, check for pulse and breathing, and others require no specific first aid equipment. It is observed then in this operational setting that the necessity for first aid kits readily available is not nearly as important as a well-trained officer who can perform basic stabilization procedures.
- A summary of scores on the first aid performance index (FAPI) of the 1348 cases revealed the following points. It was seen that 870 cases (64.5 percent) had a FAPI of 0. The mean of all FAPI scores was 13.6 out of a possible 100 points; however, this mean is misleading due to the large number of cases in which there was a FAPI of 0. Of the 478

cases in which there was a positive FAPI, the mean for these cases was 38.3. Approximately one-third of the cases ranged from FAPI scores of 2 to 27, one-third from 28 to 43, and one-third from 44 to 100. It is noted that 12 cases scored 100 on the FAPI.

- The cases were sorted into four categories with the first two representing very serious emergencies. Category I and II conditions represented 38 percent of the cases. It was found that there was a statistically higher mean FAPI score for the more serious emergencies. This indicates that the police were more likely to perform first aid tasks in the more serious cases. The officers were also more likely to perform first aid for traffic injuries versus other medical conditions, more likely to perform when the police intervention period (PIP) was greater than one minute versus those in which an officer arrived less than a minute before other emergency resources.
- It was also shown that a statistical relationship exists between officer attitudes as measured by the attitudinal questionnaire and actual first aid performance as measured by the FAPI. Using data collected on 166 officers, it was found that 51 officers (31 percent) reported performing no first aid even though they were present during medical emergencies. The other group of 115 officers (69 percent) reported performing first aid at the scene in at least one incident. Using discriminant analysis, it is shown that by knowing the scores of two attitude indicators, the analysis technique could predict whether an officer will perform first aid or not with 69.1 percent accuracy.

Attitudinal Studies

Biographical

- Education seems to have been an important criterion in selecting the officers, or it has had strong ongoing support once a person has become an officer. Analysis of biographical information shows that 69 percent of the officers had educations beyond high school and 21 percent possessed a college degree.
- Thirty-five percent of the officers had a relative or friend in the medical profession. Of these, 16 percent were married to the individual, 15 percent were related by marriage, 39 percent represented a person within the officer's own family, and 29 percent were friends. The particular medical profession represented included 58 percent RNs, 6 percent EMTs, 12 percent physicians, and 24 percent in other categories.
- Of the first aid training received by the officers outside of the police academy, 5 percent had been Armed Forces medics, 46 percent had taken a first aid course of some type, 10 percent had done individual study, and 10 percent had obtained some additional first aid knowledge. Twenty-nine percent of the patrolmen had had no other training than that offered in the police academy.

Satisfaction with the Delivery of First Aid

- Overall, the officers are moderately satisfied with the delivery of first aid.

- While generally positive feelings were expressed about the delivery of first aid care, officers indicate only a moderate liking for the actual administration of first aid. In fact, officers appear to neither particularly enjoy nor dislike giving first aid.
- Officers tend to have a strong feeling of accomplishment arising from the delivery of first aid.

Evaluation of First Aid Training

- Overall, the officers are satisfied with the usefulness and content of the first aid training program.
- Responses to individual questions show a generally strong feeling that first aid training has been useful. There is a mild feeling that some of the training was busy work.
- The officers feel that the first aid instructors were very competent and that they were quite interested in individual performance.
- Most officers generally agreed that needed first aid procedures were actually covered in the training program.
- Officers believed that the first aid training program increased their confidence in dealing with accident situations.
- When the officers were asked to check items in which they would like to receive more training, four items received 65 percent of the responses. Twenty-four percent wanted more training for heart attack situations, 19 percent in drug overdose identification, 11 percent in rescue/extrication techniques, and 10 percent in cardiopulmonary resuscitation (CPR). Heart attack situations and CPR are obviously related.
- Ninety-seven percent of the officers believe that the first aid program should be continued.
- There is a tendency for those having two or three years of police experience to rate the first aid program very high. Those having more than fifteen years experience rate the program very low.
- The officers tend to support a program for periodic review of first aid skills.

Beliefs Concerning the Outcomes of Police First Aid

- There is a strong agreement with the notion that police participation in the first aid system has resulted in quicker and better emergency medical care, but the proposition that fewer traffic deaths have resulted from the first aid program is seen as questionable.
- Officers do not believe that first aid duties create too much work for them at accident scenes or hinder their other duties in general.
- Police do not perceive any conflicts between themselves and EMTs.
- Police feel that their administration of first aid does not reduce community respect for EMTs. Transfer of care from police to EMTs is seen as being especially smooth.

- Officers strongly disagree with the notion that first aid delivered by the police results in additional work for the EMT.
- There is some tendency to feel that the DKPD receives good publicity for its first aid efforts.

Acceptance of First Aid as a Police Activity

- Officers strongly believe that the first qualified person to arrive on the scene should administer first aid.
- There is no preference to wait for an EMT to give first aid and there is the decided feeling that, when the injuries are severe, it is best to begin treatment without waiting for an EMT.
- Officers feel confident in their abilities since there is general agreement that the presence of an EMT does not result in a feeling of relief when they arrive at an emergency scene.
- There is a slight tendency toward relieving the police of first aid duties. However, there is strong disagreement with the proposition that only EMTs should deliver emergency care.
- Officers are not sure if their abilities to give first aid could be used more than they currently are, but there is strong agreement with the proposition that police cars should be dispatched at the same time as ambulances.

Perception of Superior Officer Attitudes

- There is a clear feeling that immediate superiors provide very little feedback concerning the officers' performance of first aid duties and that immediate superiors have only moderate regard for first aid delivery.
- The administrative staff is felt to have only a moderate knowledge about problems of administering first aid in the field, but they are not seen as regarding first aid as an additional burden. It is particularly striking to note that the administrative staff is not seen as having a feeling decidedly for or against the first aid program.

General Job Satisfaction

- The officers are very satisfied with their jobs. In particular, there is a strong sense of being part of a team, of belonging to a department well regarded by other forces, of making a contribution to the total force, of having good working conditions, of having good equipment, and of being generally satisfied with the work.

CONCLUSIONS

This section summarizes the general conclusions of the research project. This is followed by a proposed implementation plan which should provide useful information for decision-makers who are considering implementing the MAV concept.

General Conclusions

The research has indicated that the MAV concept is indeed feasible and can be operated with considerable success within the community and at a modest cost. With respect to the quickness of response, it was found that police typically can and do arrive on the scene prior to the arrival of an ambulance in many cases. The study showed that police could have been on the scene prior to EMS in 66 percent of the cases if the dispatch of EMS and police had been simultaneous. However, in only 35 percent of the cases did police actually arrive prior to EMS.

The amount of time on the scene which the officer has prior to the arrival of EMS was also found to be significant in terms of the potential of rendering first aid. Had there been simultaneous response, the police officer could have been on the scene at least two minutes in 56 percent of the cases or at least four minutes in 35 percent of the cases. However, the police were actually on the scene for at least two minutes in only 28 percent of the cases due to the dispatch delay.

Since the police already routinely respond to traffic accidents and violent-related incidents in which first aid is required, and since they are often the first to arrive on the scene, the performance of first aid by the officer is indeed important.

With respect to performance, the amount of first aid delivered by the officers in the study group was uniformly low. This appeared to be related to the availability of highly sophisticated EMS resources in the study site. For a higher number of non-serious cases, the police tended to wait for ambulance personnel to take care of less serious emergencies, but rendered care immediately in life-threatening situations. The study showed a significantly higher level of performance for the more serious emergencies. The serious emergencies represented 38 percent of the total cases in which the officer arrived prior to the EMS unit.

Acceptance of the first aid role as part of the police officer's overall duties is an important point to consider. Behavioral implications may possibly be the most critical factors to consider when implementing the MAV concept. Police officers must be motivated to perform first aid and must consider emergency medical services as part of their primary police role if the MAV concept is to be successful. Behavioral surveys conducted during the project indicated that the police in the study group

supported the MAV concept and were willing to perform basic first aid. However, this attitude was not uniformly shared by all officers.

The study also showed that a relationship existed between actual officer first-aid performance (defined by the score received based upon first aid performed) and officer attitudes (derived from the attitude questionnaire). Thus, officer attitudes were found to be statistically related to actual first aid performed.

Performance of first aid tasks did not appear to be significantly related to a conflict with traditional law enforcement duties. This may be due in part to the notion that the police officer's first responsibility is to the victim, regardless of whether or not the police officer has first aid training. Thus, training police officers in first aid gives the officer the capability to effectively handle situations which he frequently encounters in conjunction with his traditional law enforcement duties.

It was found that inter-agency communication and cooperation are very important aspects in implementing the MAV concept. Conflict between agencies who render emergency medical care can have a pronounced effect on the effectiveness of the MAV concept. In addition, when different agencies are responsible for responding to emergencies, it is essential that responsibilities be specified in detail and that all agencies are aware of their respective roles.

With regard to resource requirements associated with implementation of the MAV concept, delivery of first aid was not perceived as being "extra work" for the officer. In addition, it was found that in order to provide the basic stabilizing care in a first responder capacity, the police officer needs little equipment. A good first aid kit in the trunk of each vehicle represents a valuable asset but was not used heavily. A training program at the level of 40 hours appears to be appropriate. This will require considerable officer release time for departments having many officers to train. Another consideration is periodic retraining of officers needed in order to insure that the officers maintain their first aid skills. Refresher training at six-month intervals should be planned in order to review the basic stabilization skills.

Implementation Plan

This research project has developed information which is useful in considering implementation of the MAV concept in other settings. The

following issues should be addressed in making the decision to implement the MAV concept and in subsequent implementation of this program:

1. In a setting which is considering implementation of the MAV concept, the average response time for the EMS unit and the average response time for police vehicles should be compared. If the response time difference for the EMS unit is two minutes or longer, then this setting could benefit from the MAV concept.

2. The dispatch system for EMS vehicles and the dispatch system for police vehicles should be studied to determine the best method of linking these two communication centers together. The MAV concept is most effective when a simultaneous dispatch of police and EMS vehicles is accomplished. Thus, both dispatch centers should work in harmony toward transferring calls to each other.

3. It is vital that the MAV concept be supported--and hopefully even initiated--from high police department officials. Without the enthusiastic support of the police chief and other high-ranking police officials, the program is likely to be ineffective. Specific areas of support include the following:

   a. Money for equipment and for training should be available in the police department budget.

   b. Release time should be given for first-aid training of the officers as part of their on-duty time.

   c. Periodic retraining time (e.g., six-month intervals), needs to be available and this basic commitment should be made at the beginning by police department officials.

4. The support from the high-ranking EMS officials is also vital to the MAV concept. This might include: (1) the fire chief for an EMS system operated by the fire department, (2) the owners and operators of the ambulance company for a private company system, or (3) hospital administration and ambulance administration for a hospital based or other public ambulance operation.

5. A determination should be made of the general willingness of the police officer to take on this role of providing first aid service in addition to his other routine duties. The officers for which the MAV concept is to be considered should already be routinely happy with department operations and have a strong allegiance to the police chief and other police administration.

6. Public support and interest in the implementation of the MAV concept should be sought through local community leaders and leaders within the health care community such as physicians, hospital administrators and other groups.

7. Implementation of the MAV concept should include good community awareness. It is vital that the public know that this is a police department function so that good cooperation from the public will be forthcoming. This awareness should be developed through the various local news media. Good community awareness will produce broad-based public support.

8. It is vital in the implementation of the MAV concept that a strong spirit of team cooperation be emphasized between the police officers and EMS personnel. This team cooperation can be enhanced by mutual understanding of what the role of each group is in delivering emergency care. Various programs should be undertaken which will enhance good team cooperation and mutual respect for each department. Such programs may include police officers taking periodic rides with ambulance personnel, various forms of training interactions such as guest speakers from each agency, group functions in which the personnel from each organization get to know each other better, and such similar activities. Good team cooperation will only be possible if the role of each agency is very clearly and specifically defined and the personnel of both agencies are intimately aware of the relationship of those roles.

The implementation of the MAV concept will greatly depend upon community interest and leadership. The public will have to perceive the need and the police and EMS personnel will have to understand the importance of such a program. Communities in which the EMS response time is especially long (e.g., rural areas) have the most to benefit from this concept. A properly implemented first-responder program should be a strong asset to an existing EMS system.

EVALUATION OF THE ROLE OF POLICE IN THE EMS SYSTEM

FINAL REPORT

Grant No. R18 HS 01767

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

ABSTRACT

The purpose of this research was to evaluate the performance of medically-trained police officers serving as rapid-response resources in conjunction with an existing emergency medical services (EMS) system. The routine response of medically-trained police officers for the purpose of administering first aid procedures prior to the arrival of an ambulance is referred to as the medical aid vehicle (MAV) concept.

The research setting was DeKalb County, Georgia, one of the central counties in the Atlanta Metropolitan area. The DeKalb County Police Department (DKPD) has required all new personnel to undergo first aid training as part of the police academy training program for several years. The present first aid program consists of forty hours of instruction and practice and satisfactory performance in this course is mandatory. Emergency ambulance service for DeKalb County is primarily provided by the DeKalb County Fire Department which has a close working relationship with the police department. When an emergency medical call is received by either the police or the fire department, the initial agency receiving the call notifies the other agency which also responds.

The existing police first aid program was analyzed for the purpose of describing first aid skills being taught to participants. Tasks or groups of tasks were described based upon the training program which should be performed for specific, individual medical emergencies. These task sets and the associated conditions were weighted by a panel of experts and this information was used to develop a performance measure. This measure, called the First Aid Performance Index (FAPI), was then based on the weighted tasks performed divided by the weighted tasks required. A similar index was developed for measuring the performance of typical police-related tasks which an officer performs at the scene of an emergency. Questionnaires were also administered to measure the attitudes and perceptions of police regarding the performance of first aid.

The study showed that average police response time to emergencies was two minutes faster than EMS units based upon approximately 4000 cases studied. Overall, police response time was 5.2 minutes. However, due to dispatch delays, police actually arrived first in only 35 percent of the cases. Studies of call origin showed that police are called first

in many emergency situations such as vehicular accidents. In these calls, police are on the scene an average of two minutes before the EMS unit arrives.

While the amount of first aid given was low for the study, it was found that performance of first aid was more likely for traffic accidents versus other medical conditions, more likely for serious injuries or conditions versus those less serious, and more likely when the police officer is on the scene for two minutes or longer versus less than two minutes.

The study of officer attitudes and perceptions regarding performance of first aid indicated that the officers supported the MAV concept and were willing to perform basic first aid. However, this attitude was not uniformly shared by all officers. The study also found a statistical relationship to exist between individual officer attitudes as measured by the questionnaire and actual officer performance of first aid.

In order for the MAV concept to work effectively in other settings, there should be at least a two minute difference in organization response times. A well-coordinated (or common) dispatch system must also be developed. Strong support of the concept must exist among the police department administration, the ambulance providers, and the general public. Continuing resources must be available for training, equipment, officer release time, publicity, and other activities to insure the success of the concept.

CHAPTER I

EVALUATION OF THE MEDICAL AID VEHICLE CONCEPT: A PROJECT OVERVIEW

The Emergency Medical Services Systems Act of 1973, in discussing emergency medical services (EMS) systems requirements, states, in part, that an EMS system shall: ". . . emphasize recruitment and necessary training . . . of appropriate public safety personnel. . . ."' ". . .include an adequate number of necessary ground, air, and water vehicles and other transportation facilities to meet the individual characteristics of the system's service area. . . ."; and ". . . provide for the effective utilization of the appropriate personnel, facilities, and equipment of each public safety agency providing emergency services in the system's service area. . . ." (Public Law 93-154, 1973, pp. 5-6). In a two-and-one-half year research project supported by Grant #HS 01767 from the National Center for Health Services Research, the utilization of one of the most important and visible public safety agencies in the EMS spectrum was examined. Specifically, the role of the police officer serving as a rapid response resource for medical emergencies in conjunction with a functional EMS system was examined. This routine response of police officers to medical emergencies for the purpose of administering first aid procedures prior to the arrival of an ambulance is referred to in this project as the medical aid vehicle (MAV) concept.

The purposes of this chapter are to present a broad overview of the MAV concept and to briefly describe the research project through which this concept was evaluated. Included in this discussion is a summary of the purpose and objectives of the project conducted by the Health Systems Research Center (HSRC) of the Georgia Institute of Technology in cooperation with the DeKalb County (Georgia) police and fire departments.

Background

As reported by the Committee on Trauma and Shock of the National Academy of Sciences (1970)--and as frequently restated by others--approximately one out of every four Americans suffers some type of accident each year. In the United States in 1965, 52 million accidental injuries resulted in the death of 107,000 persons. Approximately 49,000 of these deaths resulted from motor vehicle accidents. In addition, over 10 million people were temporarily disabled and 400,000 were permanently impaired. Of the

52 million injuries, most received medical attention in emergency departments, physicians' offices, or in hospital outpatient departments, and were subsequently discharged. However, over 2,000,000 injury victims were hospitalized for treatment (Committee on Trauma and Shock, 1970, pp. 5, 9).

In addition to accidental injuries, other health problems are also classified as medical emergencies. According to a report by a study group on coronary heart disease, an estimated one million people experience acute myocardial infarction or sudden coronary death each year (American Health Association, 1971, pp. A-171). The National Center for Health Statistics estimates that there were approximately 735,190 deaths due to heart disease in the United States in 1969. Approximately 50 percent of these deaths resulted from acute myocardial infarction, and 70% of heart attack deaths occur outside of a hospital (Rose and Press, 1972, p. 63).

According to the Committee on Acute Medicine of the American Society of Anesthesiologists, there approximately 700,000 medical and surgical emergencies each year which result in death for the victim--many of which could be prevented by the application of presently known and available techniques in resuscitation and intensive care (Committee on Acute Medicine, 1967, p. 1). Experience in Jacksonville, Florida indicates that traffic mortality among those injured may be reduced by 24 percent with the implementation of a modern EMS system which uses presently available techniques and knowledge (Waters and Wells, p. 6).

With the recognition of the problems cited above, as well as others, has come the implementation of various configurations of EMS systems. While these systems may vary in some respects, a characteristic common to most (if not all) of them is the emphasis placed upon a rapid response to medical calls.

Authorities agree that a four to six minute response time is crucial for patients with serious emergency conditions such as severe hemorrhage, airway obstruction, and cardiac arrest. Strengthening this assumption, one source has tabulated the probabilities of successful resuscitation after cardiac arrrest as a function of the delay between onset of symptoms and the application of appropriate emergency medical treatment (Montgomery, 1971, p. 5). As shown in Table 1, every minute delayed in receiving help reduces the victim's chances of being resuscitated. The change of resuscitation after a four minute delay is 50 percent, whereas the probability drop to 11 percent and 1 percent after six and ten minutes, respectively.

Table 1

CHANCE OF RESUSCITATION FROM CARDIAC ARREST AS A FUNCTION OF DELAY BETWEEN ONSET AND THE APPLICATION OF CARDIOPULMONARY RESUSCITATION

Delay	Chance of Resuscitation
1 minute	98 out of 100
2 minutes	92 out of 100
3 minutes	72 out of 100
4 minutes	50 out of 100
5 minutes	25 out of 100
6 minutes	11 out of 100
7 minutes	8 out of 100
8 minutes	5 out of 100
9 minutes	2 out of 100
10 minutes	1 out of 100
11 minutes	1 out of 1,000
12 minutes	1 out of 10,000

SOURCE: Jerry Mongomery, Are You Man Enough? The Seattle Plan, Seattle, Physio-Control Corporation, 1971, p. 5.

Furthermore, resuscitation after six minutes have elapsed may produce a victim with irreversible brain damage (Committee on Cardiopulmonary Resuscitation). Another source (Dr. Robert Baker, Director of the Trauma Unit of Cook County Hospital, Chicago) estimates for cases of "heart attack, respiratory distress, or extensive bleeding," the mortality rate increases three-fold for every thirty minutes that elapse between the time of an emergency and the time at which the patient received definitive care (Hanlon, 1973, p. 580).

Because of these and various other considerations, most EMS systems incorporate rapid-response resources (usually ambulances) into their design. In reality, however, few EMS systems relying solely on the response of ambulances can provide a four to six minute response. This is particularly true in rural areas.

While the increasing numbers of ambulances employed in EMS systems obviously enhance the potential for rapid response to medical emergencies, other supplementary resources may often be required to achieve the desired levels of availability and response times. As already noted, the EMSS Act of 1973 requires an EMS system (which receives federal support) to utilize appropriate personnel and equipment of each public safety agency providing emergency services in the system's service area. These supplementary resources may include various types of vehicles--helicopters, snowmobiles, fire trucks, and others.

Two of the more important public safety agencies providing emergency services are police and fire departments. Due partially to the large numbers of employees and the geographic distribution of manpower and equipment of these agencies, they offer valuable support for EMS systems, and certainly have the capability of responding rapidly to medical emergencies.

The MAV Concept

The concept of using police and fire department vehicles as rapid response resources to supplement a functional EMS system was introduced by the Health Systems Research Center (HSRC) in early 1973. In a study (Coyle, et al., 1973) to develope a comprehensive plan for the improvement of emergency medical services for metropolitan Atlanta, HSRC suggested the use of police cars and fire combat vehicles as "medical aid vehicles."

Due to the large number of vehicles required to provide very rapid response in a large area, and the large number of personnel required to man these vehicles, HSRC recommended that police and fire vehicles be employed to act in a dual capacity. A similar argument can be presented for rural areas, since greater distances between portions of the population and medical care are usually prevalent.

The concept of using police and fire department vehicles as medical aid vehicles thereafter became known as the MAV concept. For the purposes of this research project, the MAV concept was narrowed in definition to mean the routine response of police officers to medical emergencies for the purpose of administering first aid procedures prior to the arrival of an ambulance. This more restrictive definition was desired in part because of the advantages that a police car serving as an MAV would appear to have over fire combat vehicles serving in this capacity. Some of the advantages which are intuitively appealing are:

- Police department vehicles are more numerous than fire combat vehicles, and therefore should be capable of quicker response.
- Police vehicles are usually in motion and manned at the time they are dispatched. Fire combat vehicles are usually stationary and unmanned at the time they are dispatched.
- Patrol cars appear to be more maneuverable than fire trucks, and should be capable of quicker response if congested, narrow, or curved roads must be traveled.
- Patrol cars are frequently observed at the scene of a medical emergency prior to the arrival of a fire combat team or an ambulance, indicating that police vehicles routinely respond to many medical emergencies.

For these reasons, this research project dealt primarily with the performance of police department personnel serving in an MAV capacity.

Project Purpose and Objectives

The purpose of this research project was to evaluate the MAV concept. Objectives relating to the achievement of this purpose were as follows:

- To analyze an existing police trauma-management training program for the purpose of describing medical skills being taught to participants in the program.

- To describe the tasks, or groups of tasks, from the existing training program which should be performed for specific, individual medical emergencies.
- To assess the relationship between police performance of MAV skills and performance of "traditional" duties associated with law enforcement.
- To measure behavioral attitudes and perceptions of police and the public in regard to the police MAV concept.

In pursuing activities relating to these objectives and to other aspects of the project, various studies were conducted. These studies included an examination of the first aid training program, police and ambulance response times, dispatch delays, police intervention periods, officer performance, officer attitudes and perceptions, and telephone surveys of consumer behavior.

The Approach to Evaluation

In order to evaluate the performance of police in providing stabilizing care to emergency patients, several alternatives were considered. One area of investigation sought to answer the question of whether police can arrive at the scene significantly quicker than other EMS resources. Questions such as how often do police arrive first, how much time do police have at the scene prior to arrival of other EMS resources, and how quickly do police arrive are all addressed in Chapter 6 with other response time issues. The attitudes and beliefs of police officers regarding the delivery of emergency care are especially important. These attitudes and beliefs regarding emergency care are covered in Chapter 4. Finally, the performance of the police officer at the scene of an emergency is also important. This section discusses the approach toward developing a performance measure for use in evaluating police officers at the scene. Chapter 3 describes the actual construction of the performance measures, and the evaluation of police performance using these performance measures is described in Chapter 6.

Evaluation Alternatives to Police Performance

The performance of a police officer at the scene of an emergency can take several approaches. The two extremes of evaluation are (1) first aid performance inferred from an officer's knowledge of first aid through the

the mechanism of an exam, and (2) actual performance demonstrated in terms of the effect of police officer intervention upon the outcome of patients. Since patient outcome involves many and diverse segments of the emergency medical care system other than the performance of the officer, and since good outcome measures are not yet developed and validated, it was determined that a process measure regarding individual officer task performance would be most appropriate in this setting. The approach of the training program at the DeKalb Police Academy was centered around the recognition of patient conditions, and upon that recognition, the accomplishment of tasks or sets of tasks which would stabilize the individual patient based on the patient condition. The training program involved essentially a format in which a condition was described and the various attributes regarding recognition of that particular condition were discussed. Based upon that condition, the group of tasks which would stabilize that condition were discussed and subsequently practiced by the officers.

The Development of a Peformance Measure

The approach to evaluating officer performance then was based upon the accomplishment of tasks or sets of tasks for a given condition of the patient. A simple performance measure might then be the completion of a certain percentage of tasks which were required for a specific condition. For example, if a given condition requires the completion of five tasks, one simple measure of police performance might be the number of tasks completed divided by five tasks.

It was recognized initially in the project that some tasks in a group of tasks are more important than others. For example, if one task out of the five was by far the most important, then it is vital that the police officer does that one task as opposed to the other four and that the evaluation measure is able to account for the completion of this task. For example, if two tasks out of five were completed, then the police officer would receive a 40 percent performance measure if all tasks were equal. However, if the most important task was determined to be six times as important as the others, then the most important task would receive 60 points, with the other four receiving 10 points each. The officer who gets two tasks out of five, unlike the previous example, would score 70 if one of the two tasks included the most important task. The officer would score 20 if neither of the two tasks was the most important task. The concept of task weighting was then determined to be important in developing a task performance measure.

Several other issues were explored in the initial concept of the task performance measure. One of these issues concerned the sequence of tasks performed by the officer. For example, are there conditions in which task A should be performed before task B? During these discussions, it appeared that there were few cases in which task sequence was greatly important. It was further realized that task sequence would be extremely difficult to document and a performance measure developed based upon proper sequencing. Task weighting does imply sequence in that some tasks are more important than others; however, no mechanism exists to properly evaluate task sequence.

Another issue concerned the situation of multiple conditions. For example, a person who has an airway obstruction and a minor laceration does not have two equally important conditions. The performance measure then should deal with the fact that some conditions are more important than others and therefore the tasks required by those conditions should have a higher value than those tasks required by less important conditions. It was then determined that the officer should receive more credit for treating the more serious of multiple conditions. The conditions would therefore be weighted in order of priority. Another issue during initial formulation of the project was that of whether simple task completion be recorded or a measure developed to determine how well the tasks were performed. It was obvious that unless a trained observer with clincial experience were accompanying each police officer on every police assignment, it was otherwise impossible to determine how well tasks were performed in the field with any consistency. A related issue concerned the recording of this information for use by the project staff. The project staff developed an incident form which was to be completed by the individual police officer on every emergency case. This incident form included a set of check boxes in order for the officer to specify the condition or conditions of the patient and also the specific first-aid task or tasks which were performed by the officer. Since the project staff realized that a great number of these incident forms would be completed, it was not practical to rely on trained observers in filling out these forms. The form was then designed in order to allow the individual police officer to fill out the form subsequent to the incident. This data collection process was supplemented by observers riding with various officers on a random basis.

Summary

The approach to task performance was the identification of a group of tasks which were to be performed by the police officer according to specific conditions of the patient. This approach was based upon the training program. For a specific condition, tasks or groups of tasks were identified from the training program as being important in responding to that condition. The approach to performance then was not,"Did the officer do the correct thing?" but "Did the officer do as he was trained to do?" The issue of sequence of tasks and to what extent the tasks were performed properly was not part of the performance evaluation approach. In Chapter 3, the development of this performance measure is described and the determination of the weights of the various tasks and the process by which these were developed are described in detail. In addition to a performance measure developed for the response to emergency conditions, a performance measure was also developed for other police duties in which the police officer was required to perform at the scene. The project staff was interested in determining to what extent, if any, did the accomplishment of traditional police duties at the scene interfere with performing first aid duties. Therefore, the construction of a performance measure similar to the first aid performance measure was developed in order to provide a quantitative measure of traditional police task accomplishment at the scene of an emergency. This police task performance development is also described in detail in Chapter 3.

CHAPTER II

THE DEKALB COUNTY DEMONSTRATION SITE

The site for this research project was DeKalb County, Georgia, one of the central counties in the Atlanta metropolitan area. DeKalb County has 464,000 residents and encompasses a total of 269 square miles, making DeKalb County the second largest county in population in the Atlanta area as well as in the State. The police department used in this research project was the DeKalb County Police Department (DKPD), which is the dominant law enforcement agency within DeKalb County.

The following sections describe the emergency medical service (EMS) system in DeKalb County as it existed during this project. There are currently two major public safety organizations responsible for emergency care within the county: the fire department and the police department. Each of these agencies will be described in terms of its EMS function with respect to organization, training, and response to emergency calls.

The DeKalb County Fire Department

The DeKalb County Fire Department (DCFD) operates the primary county-wide EMS system. This operation is approximately four years old and is one of the most modern county EMS systems currently in existence. The department provides a valuable, quality, emergency medical service in which the county has considerable pride.

The Organization of the DCFD EMS System

At the beginning of this research project, there were 16 fire stations in the DCFD system, housing 7 active EMS units manned by 51 trained EMTs. During the course of the study, 2 additional EMS units were added, bringing to a total of 9 those fire stations housing EMS units. Fire department pumpers from each of these stations as well as EMS (ambulance) units are considered to be medical response vehicles. For certain calls, designated as Mode 1, a pumper as well as an EMS unit and a battalion fire chief are dispatched. These calls include heart attack, person trapped, major fire, and other similar life-threatening calls. In cases where lesser problems exist but an

EMS unit cannot quickly respond, a pumper is also dispatched. Pumper crews are able to provide basic first aid supplies, and the majority of pumper crewmen have had basic EMT training.

Training of EMTs and Other Fire Department Personnel

To become a DCFD paramedic, there are several steps in the training process. First, there is a 10-week basic recruit training program which all fire department personnel undergo. This is followed by a 125-hour Department of Transportation (DOT) basic EMT course. Selected recruits then complete a 480-hour advanced EMT training course which is taught in conjunction with the DeKalb General Hospital. At the completion of this course, 700 hours of field experience on an EMS unit are required, followed by frequent in-service education assignments.

It is the ultimate goal of the fire department that all firemen complete at least the 125-hour DOT course; therefore, pumper crews who respond to Mode 1 calls can be expected to have completed the basic 125-hour EMT training course.

Response to Emergency Calls

Calls are received by the fire department at a two-console dispatch center on one of four EMS or four fire phone lines. One console disptach center is primarily for fire calls whereas the other console can dispatch either fire or EMS units. Calls for emergency medical services are received by the fire department through several mechanisms. A caller may phone the county-wide highly-publicized EMS or fire department number (911). In addition, calls may come from the police department dispatch center on dedicated ring-down telephone lines. Radio calls from fire department units in the field represent the third major source of notification.

Upon receipt of a medical call, an EMS unit will be dispatched by one of the two communications officers on duty in the dispatch center. If the call is a Mode 1 call, or if the nearest EMS unit is busy, a pumper will also be dispatched.

Dispatch calls are made to the active EMS units by radio or by phone. During the daytime hours, most EMS dispatch calls are made by radio. After 9:30 p.m., all dispatch calls are made to the EMS stations by means of direct telephone lines. This eliminates the need for a radio

watch during the evening hours in which the firemen are normally sleeping between calls.

All responses to emergency medical calls are handled with siren and lights to the scene of the emergency. The return run to the hospital is handled as the condition of the patient warrants.

Once the patient is located at the scene, he is stabilized and then transported. Should medical advice be required, the EMS unit notifies the fire dispatcher who will then call one of the two hospitals which participate with the county in providing emergency care. These two hospitals have direct, dedicated phone lines from the fire dispatcher. When a physician is contacted by the dispatcher, the physician then speaks with the EMTs at the scene by radio to provide needed medical advice. Such advice is required, for example, for the authorization of intravenous fluids or drugs.

Not all patients are transported to the hospital from the scene of the emergency; some are treated and released at the scene. If the patient is transported, he will be billed for the service, whereas no charge is made for "first aid" calls.

A detailed record is kept of all dispatch and arrival times (including at the scene and at the hospital) by means of a time-punched dispatch card. Using this time clock arrangement, accurate dispatch and arrival times as well as other associated times are recorded. A run report form is completed by the EMTs on each call, describing the initial patient condition, treatments given, and other relevant information, including response time estimates. This form is read by a mark sense reader, thus facilitating the computerization of the information. The run report is comprehensive with regard to the condition of the patient and includes pulse, blood pressure, respiration, state of consciousness, and any procedures which were performed by the EMTs. Certain procedures such as drug administration, defibrillation, intravenous fluid administration, and others are also carefully recorded and documented. Computerized run reports from the fire department were used in the analysis of the experiment.

The DeKalb County Police Department

The DeKalb County Police Department has been providing first aid for approximately twenty years. The following sections summarize the

organization of the police department, the first aid training given to the police officers, and the response to medical calls received by the police.

Organization of the Police Department

The DeKalb County Police Department has a total of 462 employees. The Uniform Division represents the largest subgroup of these employees, with 248. Of this number, approximately 235 are sworn police officers. It is the Uniform Division which provides the primary response to all calls for police assistance; therefore, it is the Uniform Division through which first aid care is routinely provided. The following sections will describe the organization of the Uniform Division, the first aid training which is given to each police officer, and his response to emergency calls.

Organization of the Uniform Division

As shown on the map of Figure 1, the Uniform Division is separated into two major divisions (DeKalb North and DeKalb South). Each division is partitioned into three zones or sectors (e.g., N1, N2, and N3), which are further subdivided into districts (e.g., 110, 120, 130, 140, for N1).

Furthermore, each district is divided into beats (e.g., 120 is divided into 121, 122, 123, and 124). In general, a beat corresponds to a particular census tract, which in turn corresponds to an officer's territory. A district, therefore, is composed of several census tracts.

Officers are assigned to districts and beats according to available manpower and vehicles and coverage may vary from day to day. The captain in charge of each watch (each shift) prepares daily assignments guided by the crime statistics generated by the DeKalb County Data Center. Two lieutenants oversee each of the two divisions of the county with sector sergeants in charge of individual sectors. The sector sergeants provide backup for all serious calls, in addition to coordinating the activities of the officers in their sectors.

The DKPD is scheduled on a "4-10" plan. Each officer works four days per week for ten hours per day followed by three days off. The shifts or "watches" required for this type of schedule are shown in Table 2.

Figure 1

DKPD TERRITORIAL DISTRICTS

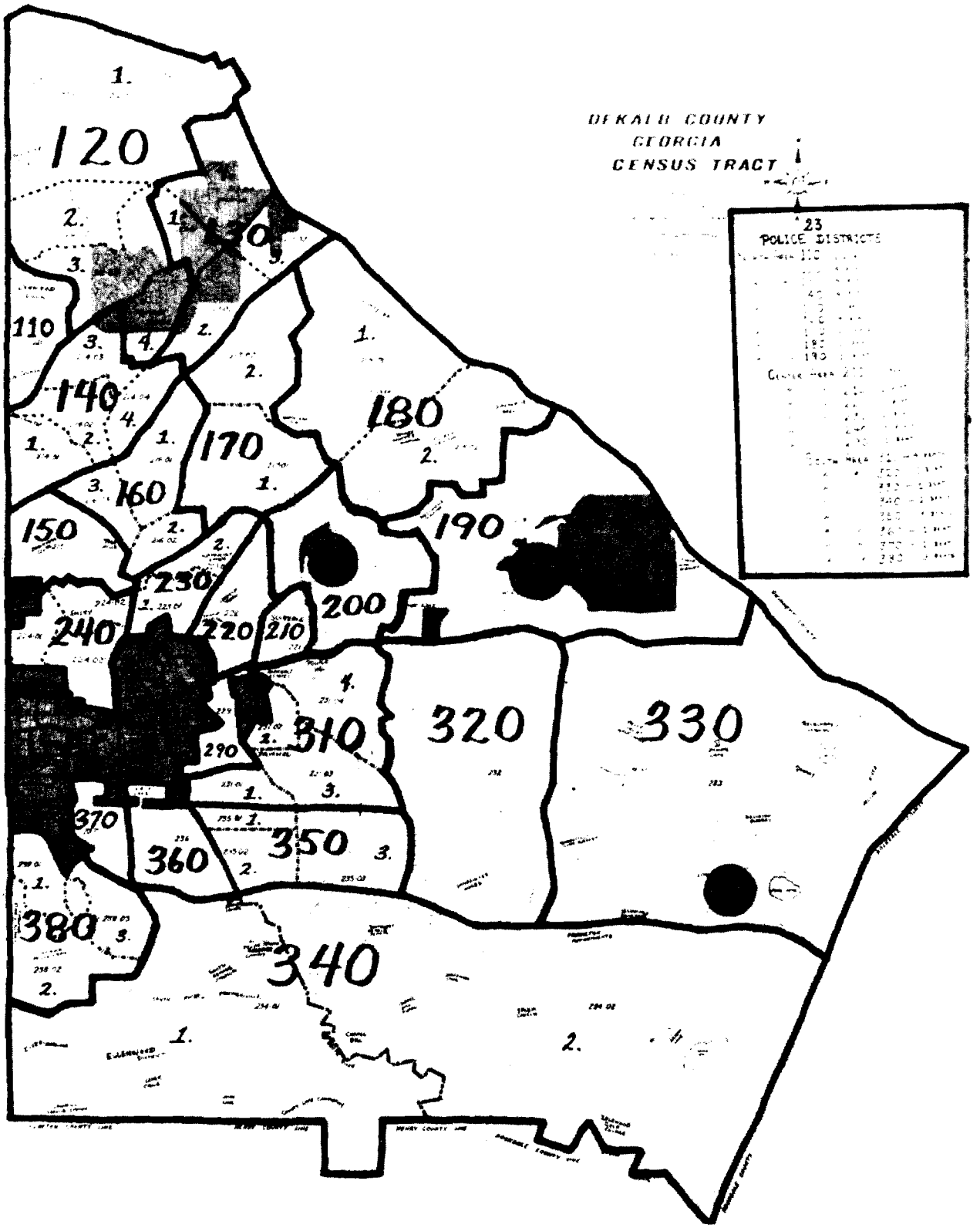


Table 2

SCHEDULE OF UNIFORM DIVISION OFFICERS

Watch	Time	Manpower
Day	7:00 am - 5:00 pm	68 men
Evening	4:30 pm - 2:30 am	80 men
Task Force	9:30 pm - 7:30 am	42 men

Patrol coverage is generally restricted to unincorporated areas of DeKalb County. Thus, cities with their own police forces--such as Atlanta (a portion of which is in DeKalb), Decatur, Stone Mountain--are not routinely patroled by the DKPD. However, DKPD units will back up a response in these areas when requested by the appropriate police agency.

First Aid Training

As an integral part of the DKPD Police Academy training program, approximately 40 hours of advanced first aid training is given. Judge Arthur M. Kaplan, an honorary major in both the DeKalb County and the City of Atlanta police departments, serves as the instructor for this course. Judge Kaplan has worked for 25 years as a volunteer in teaching and providing first aid and has received eight Presidential Citations through the Red Cross, as well as other forms of national recognition for his dedication and achievements in this area. Through his personal insights gained on the streets in police rescue units, Judge Kaplan is uniquely able to relate to the young police trainee and to present first aid situations as they will actually be encountered. Judge Kaplan is a qualified EMT instructor-trainer. The training sessions include combinations of American Red Cross Advanced First Aid (the text for the course), supervised technique practice, and firsthand accounts of applications of these techniques in actual on-the-scene trauma situations. Photographs are utilized in many instances as are actual case studies, during the course of the program. The training is intended to be highly motivational to the individual officer.

The importance placed upon the first aid training program is apparent in that this portion of the academy training is one of only two

parts for which the trainee is required to receive a passing grade to successfully complete his academy training. (The other requisite is qualification on the firing range.) The Chief of Police was personally in attendance one evening and spoke briefly on the importance of first aid training and his personal use of first aid in the past.

Specific objectives of the training include the following:

1. Roles and responsibilities at the accident scene.
2. Legal aspects relative to the rendering of first aid.
3. How to handle all life-threatening emergencies including airway care, pulmonary and cardiopulmonary resuscitation, control of bleeding, poisonings, and prevention of shock.
4. How to handle crash-related injuries including wounds, fractures, and burns.
5. How to handle illnesses or conditions which might cause or result from a crash, such as heart attack, stroke, epileptic seizure, emergency childbirth, and alcohol and drug abuse.
6. How to handle other emergencies which could be encountered in the officer's day-to-day activities, such as bites and stings and exposure to heat and cold.
7. How to handle patient examination and triage.
8. How to move injured persons and how to determine when such movement is necessary.

A major emphasis of this course was on the practical aspects of first aid administration. Therefore, many simulated emergency situations were utilized to allow the student to practice the actual first aid techniques.

As previously stated, this course consisted of 40 hours of classroom and supervised instruction in first aid techniques. Include within this time frame were the practical and written examinations. The actual session-by-session coverage is outlined in Figure 2. Each of the ten sessions is shown with the topic(s) covered and the approximate time devoted to each topic.

Police Response to Medical Emergencies

The response to medical emergencies by the DeKalb County Police Department is shown schematically in Figure 3. Incoming requests for medical assistance originate from one of five sources: (1) from the fire department by ring-down line, (2) from a person in need or by a

Figure 2

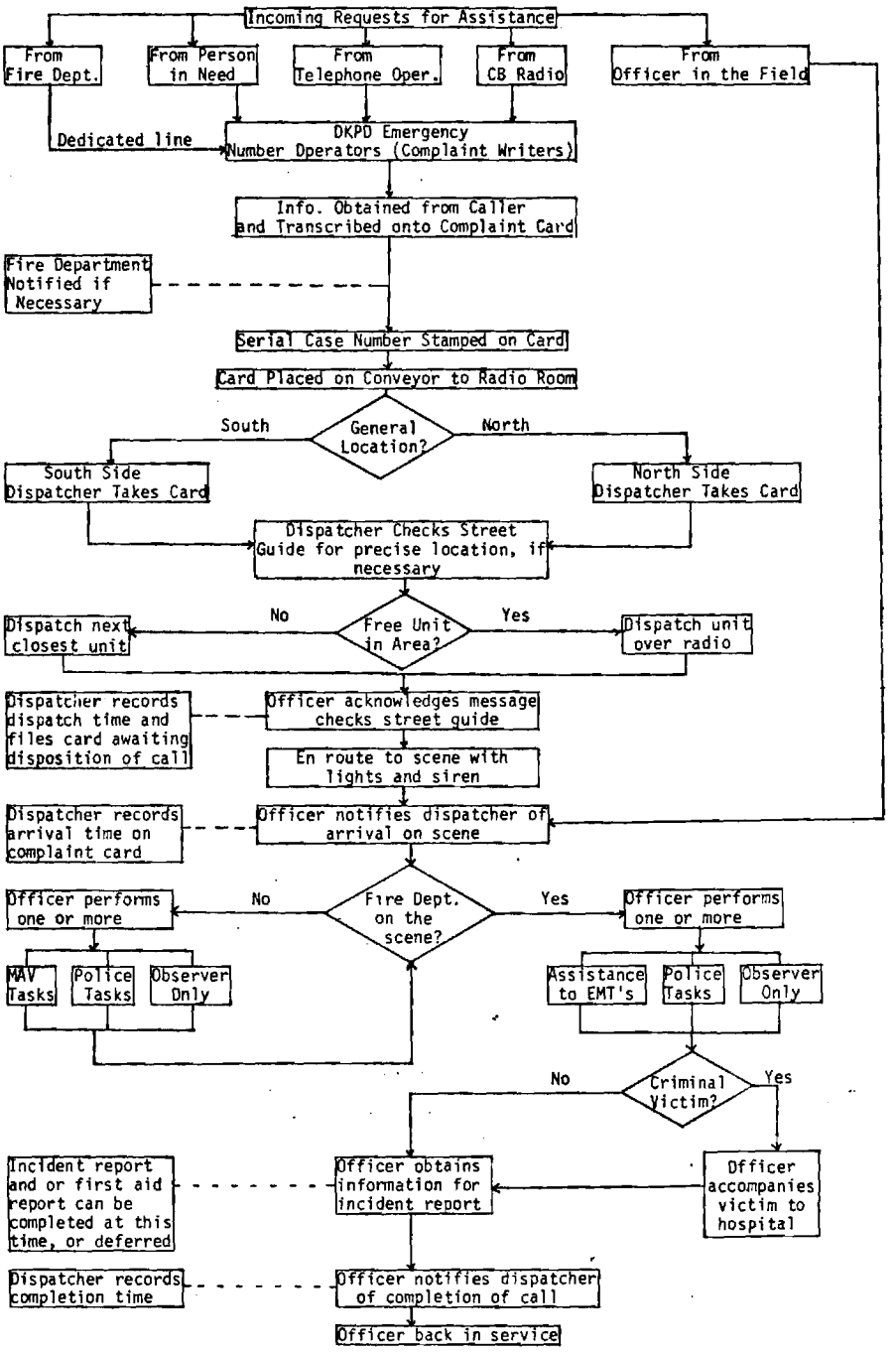
TRAINING SESSION TOPICS

Hour	Session 1	Session 2	Session 3	Session 4	Session 5
1	Introduction Three "rush" cases	Wounds (cont'd)	General review	Blood pressure measurement	Film: "Pulse of Life"
	BREAK	Bandaging; bleeding control	Artificial respiration (cont'd)	Bandaging practice	Poisoning
2	Examination of victim; triage	BREAK Use of a tourniquet	BREAK	BREAK	BREAK
		Pupillary reaction	CPR	Slides: "Emergency Measures in CPR"	Burns
3	BREAK	Shock; heat exhaustion; heat stroke		American Heart Assn. written CPR exam	BREAK
	Wounds; control of hemorrhage	BREAK	BREAK	BREAK	CPR practice; CPR practical examination
4		Artificial respiration	Film: "Prescription for Life"	Exam grading and discussion	

Hour	Session 6	Session 7	Session 8	Session 9	Session 10
1	Fractures; dislocations; joint injuries	Extrication and movement of victim	Impaled objects	Practical first aid exam (using simulated emergency situations)	Final written exam
	BREAK	BREAK	Heart attack symptoms		
2	Fractures, etc. (cont'd)	Extrication, movement, and splinting practice	BREAK		BREAK
	Splinting practice; Thomas Ring splint		Back pressure--arm lift artif. resp.		Exam discussion and grading
3	BREAK	BREAK	Airway adjuncts and Ambubag	BREAK	
	Emergency childbirth; film	Practice session (cont'd)	BREAK	Review for written exam	
4			Legal considerations in first aid		

Figure 3

DKPD EMERGENCY MEDICAL RESPONSE



bystander by means of a direct phone call to the department, (3) from a Southern Bell telephone operator, (4) from a CB radio operator (the police communications center continuously monitors Channel 9), or (5) from an officer in the field. The first four of these come in by telephone or to the telephone area in the case of CB calls. The telephone operator takes down the necessary information onto a complaint card and a case number and call time are stamped on the card with a timeclock. If the call did not originate from the fire department, the DCFD is then notified on a dedicated ring-down telephone line. The stamped complaint card is then placed on a conveyor which travels to the communications room, and either the north or the south dispatcher (depending upon which half of the county the incident took place) then takes the card and dispatches an appropriate unit. The officer dispatched proceeds to the scene with lights and siren, and notifies the dispatcher upon arrival. The time of arrival is then recorded on the complaint card. If the fire department is on the scene, the officer either assists EMTs, does traditional police-related tasks, or goes back into service. If the fire department is not on the scene, the police officer may perform first aid tasks as required until their arrival. At the conclusion of the incident, the officer obtains information for an incident report and a separate first aid report (see Figure 4) designed specifically for this study. Should the incident involve criminal action, the officer might accompany the victim to the hospital. After completing the call, the officer notifies the dispatcher that his unit is back in service. The dispatcher records this time on the complaint card. The officer is then ready to take another call. The complaint card which was originaly made out by the police telephone operator contains several pieces of necessary information for the study. First, it shows the six-digit case number which was initially stamped on the card. It also contains the dispatch time, the arrival time, and the time back-in-service, as stamped by the timeclock by the radio operator. When the officer completes the First Aid Report form, he records the six-digit case number (obtained by radio from the dispatcher) which was originally stamped on the complaint card. Therefore, in addition to the information associated with the First Aid Report accurate dispatch, arrival, and back-in-service times were available

Figure 4

DKPD FIRST AID REPORT

DKPD FIRST AID REPORT

DATE ☐☐☐ mo day year

STREET ADDRESS OR LOCATION ☐

TIME (APPROX.) ☐:☐

NUMBER NEEDING FIRST AID ☐

CASE NO. ☐☐☐☐☐☐

BADGE ☐☐☐

EMS UNIT 5 ☐☐ (for DeKalb)

Check type of ambulance on scene

☐ FIRE DEPT. ☐ GRADY ☐ METRO

Was ambulance on scene when you arrived? ☐ YES ☐ NO

Did ambulance transport victim? ☐ YES ☐ NO

PATIENT CONDITION
(check one or more)

BREATHING
- ☐ ABSENT
- ☐ ABNORMAL/DIFFICULT

PULSE
- ☐ ABSENT
- ☐ ABNORMAL

CONSCIOUSNESS
- ☐ SEMI-CONSCIOUS
- ☐ UNCONSCIOUS

BLEEDING
- ☐ MINOR TO MODERATE
- ☐ SEVERE
- ☐ UNCONTROLLABLE

SKIN COLOR
- ☐ PALE BLUISH
- ☐ FLUSHED/RED

- ☐ BITES AND STINGS
- ☐ BURNS (CHEMICAL)
- ☐ BURNS (THERMAL)
- ☐ CHEST PAIN
- ☐ DISLOCATIONS
- ☐ DIZZINESS FAINTING
- DROWNING
- ☐ DRUG OVERDOSE
- ☐ EMERGENCY CHILDBIRTH
- ☐ EPILEPTIC SEIZURE
- ☐ FRACTURES
- ☐ HEAT STROKE
- ☐ HIGH TEMPERATURE CONVULSIONS
- ☐ IMPALED OBJECTS
- ☐ MENTAL PROBLEMS
- ☐ NAUSEA/VOMITING
- ☐ PAIN
- ☐ POISONING (BY MOUTH)
- ☐ PUNCTURE WOUNDS (KNIFE OR SHOT)
- ☐ SHOCK OR HEAT EXHAUSTION
- ☐ STROKE
- ☐ OTHER (NAME) _____

CONDITIONS AT SCENE
(check all that apply)

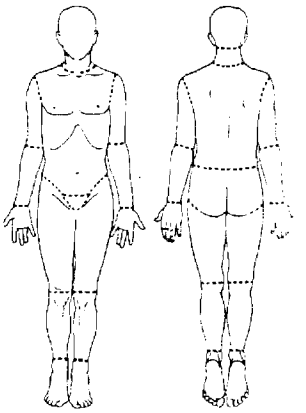
LOCATION OF INCIDENT
- ☐ POSES IMMEDIATE THREAT TO LIFE *(comment below)*
- ☐ POSES POSSIBLE THREAT TO LIFE *(comment below)*
- ☐ POSES NO THREAT TO LIFE

VEHICLES INVOLVED (for traffic accident only)
☐ 1 -2 ☐ 3 - 4 ☐ 5 or more

PERSONS AT SCENE
- ☐ CONGESTED
- ☐ NOT CONGESTED
- ☐ UNATTENDED MINOR(S)
- ☐ PERSON(S) STRANDED

CRIME FACTORS
- ☐ NO CRIME PRESENT
- ☐ POSSIBLE MISDEMEANOR
- ☐ POSSIBLE FELONY
- ☐ IN PROGRESS OR SUSPECT FLEEING
- ☐ AFTER-THE-FACT

INJURY LOCATION
for broken bones, MARK: X
for bleeding, CIRCLE O
for burns, CROSSHATCH: #



NON-MEDICAL TASKS PERFORMED
(check as appropriate)

BEFORE arrival of EMS ↓ | AFTER arrival of EMS ↓

- ☐ ☐ TRAFFIC CONTROL
- ☐ ☐ CROWD CONTROL
- ☐ ☐ PRESERVATION OF SCENE
- ☐ ☐ PROTECTION OF INJURED AND THEIR PROPERTY
- ☐ ☐ EVACUATION
- ☐ ☐ COMMUNICATION

INVESTIGATION
- ☐ ☐ IDENTIFICATION
- ☐ ☐ INTERROGATION
- ☐ ☐ SEARCH

CRIMINAL ACTION
- ☐ ☐ APPREHENSION
- ☐ ☐ CITATION OR ARREST

ASSISTANCE TO UNINJURED
- ☐ ☐ REFERRALS
- ☐ ☐ PROVIDE TRANSPORTATION
- ☐ ☐ ARRANGE FOR TRANSPORTATION
- ☐ ☐ EXCHANGE INFORMATION
- ☐ ☐ CUSTODY OF MINOR(S)
- ☐ ☐ REASSURE UNINJURED

REPORTING
- ☐ ☐ OBTAIN INFORMATION
- ☐ ☐ PREPARATION OF REPORTS

FIRST AID PERFORMED BY YOU *(check one or more)*

- ☐ AIRWAY (ESTABLISH)
- ☐ AIRWAY (MAINTAIN)
- ☐ APPLY COMPRESS/BANDAGE
- ☐ APPLY SPLINT

ARTIFICIAL RESPIRATION
- ☐ MOUTH-TO-MOUTH (NOSE)
- ☐ OTHER (LIST) _____

- ☐ CALM AND REASSURE
- ☐ CHECK FOR BREATHING
- ☐ CHECK FOR PULSE
- ☐ CLEAN WOUND

CONTROL BLEEDING
- ☐ DIRECT PRESSURE
- ☐ PRESSURE ON ARTERY
- ☐ ELEVATION

- ☐ CPR
- ☐ DILUTE POISON WITH _____
- ☐ ELEVATE FEET
- ☐ ELEVATE HEAD
- ☐ EXTRICATE VICTIM
- ☐ FLUSH WITH WATER
- ☐ FLUIDS BY MOUTH

- ☐ IMMOBILIZE IMPALED OBJECT
- ☐ IMMOBILIZE INJURY
- ☐ INDUCE VOMITING
- ☐ LOOSEN CLOTHING
- ☐ LOWER BODY TEMPERATURE
- ☐ MONITOR PULSE AND RESPIRATION
- ☐ KEEP VICTIM WARM
- ☐ REMOVE CONTAMINATED CLOTHING
- ☐ POSITION VICTIM FOR COMFORT
- ☐ RESTRAIN VICTIM
- ☐ STRAIGHTEN FRACTURE
- ☐ OTHER (NAME:) _____

COMMENTS
(Include brief description of event)

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HSRC 3/76

to the study since the First Aid Reports could be keyed to the original complaint cards.

Summary

The DeKalb County Fire Department and the DeKalb County Police Department both respond to medical emergencies. Current verbal operating agreements provide for the simultaneous dispatch of DCFD and DKPD units for medical emergency calls. While the primary and ultimate responsibility for the delivery of EMS services lies with the fire department, the valuable support provided by the police department should not be underestimated.

CHAPTER III

DEVELOPMENT OF THE TASK PERFORMANCE MEASURES

This chapter describes the development of two task performance measures, the Police Task Performance Index (PTPI) and the First Aid Performance Index (FAPI). Conceptually, the PTPI and FAPI are quantitative indicators of the performance of police and first aid tasks, respectively, by the police officer at the scene of a medical emergency. Numerically, these indices are expressed in terms of a ratio of "weighted tasks performed" to "weighted tasks required" for specific police-related events (e.g., crime scene, traffic accident, etc.), and for specific medically related patient conditions (e.g., absent breathing, heat stroke, etc.). These measures were developed independently by two different panels so that the relationship between the traditional role of the police officer and his first-aid duties could be examined without bias. In addition, the measures were constructed to be independent of the time available in which to perform both the police and first aid tasks.

The PTPI is a task-oriented performance measure which applies to numerous situations but also allows for individual cases. To achieve this adaptability, measures of relative importance, or "weights," were assigned to each of a given set of traditional police tasks required for specific police-related situations. These situations were identified by the general type of event (e.g., crime scene) and were further defined in terms of environmental, or situational, factors (e.g., congested scene, possible misdemeanor in progress) thought to influence task performance at the scene of an emergency.

With respect to the FAPI, it was necessary to develop a task-oriented measure which could be applied to the various patient conditions that a police officer is trained to manage and which would account for the treatment of multiple conditions. Thus, for each type of patient condition that the police officer is trained to manage, weights were assigned to each first aid procedure indicated for effective treatment of that condition. In addition, in the presence of multiple conditions, weights (that are reflective of relative treatment

priorities) were assigned to conditions. (To illustrate, if two conditions, "absent breathing" and "minor bleeding," were experienced by a victim, it would obviously be more important for the officer to restore breathing than to control the bleeding. An appropriately developed set of weights should reflect this type of difference in treatment priorities.)

In the absence of sufficient quantitative data concerning task performance priorities, the sets of weights used in the construction of the PTPI and the FAPI were developed using panels of experts. A panel of eight police officers provided input for the PTPI and a panel of seven EMTs and EMT instructors provided input for the FAPI.

The Group Process Approach

In order to most effectively utilize the input of the respective panels, structured group processes were used to aggregate the individual opinions of the panel members. The Delphi technique was used to arrive at the set of traditional police tasks and the set of environmental factors. A modified nominal group process was used to generate weights for both the PTPI and the FAPI. These techniques are briefly described in the following sections.

The Delphi Technique

The Delphi Technique (Dalkey, 1969) employs questionnaires to obtain information from a group. The questionnaires are filled out independently by panel members and no discussion between panelists is allowed. After the questionnaires are completed, individual responses are combined and a "group response" is compiled. Subsequently, this group response and any pertinent individual comments are "fed back" to the individual panel members together with a second questionnaire. Given this new information, panelists are given an opportunity to revise or refine their previous responses. This process of successive questionnaires followed by feedback is continued until relative agreement is reached. It should be noted that the responses of the individual panelists remain anonymous. Also, the panel need not be physically convened since questionnaires can be handled through the mail.

Delphi was chosen because it minimizes the psychological disadvantages generally associated with committee-type groups. These

disadvantages include (1) the difficulty in focusing attention on the defined (specified) issues and the tendency for panel members to "go off on tangents" and introduce irrelevant information; (2) the tendency for dominant, assertive individuals to overpower less aggressive individuals, thereby overly influencing committee output; and (3) the corresponding under-utilization of individual expertise. These disadvantages can be attributed to the fact that committee interaction is largely uncontrolled. Delphi attempts to circumvent these difficulties through elimination of direct interaction.

The Nominal Group Process

A nominal group process (NGP) is defined by Van de Ven and Delbecq (1971) as a "structured group meeting in which individuals work in the presence of others but do not verbally interact for a period of time." The process generally includes (1) silent generation of written ideas; (2) ideas verbally presented one-by-one to the group, accompanied by a short phrase visually displayed on a flip chart (no discussion allowed); (3) open discussion of ideas; and (4) silent individual voting. NGP eliminates or minimizes the previously mentioned detrimental effects of typical committee meetings by introducing well-defined measures of control--e.g., silent individual voting--to the group interaction process.

Many of the advantages cited for the NGP are similar to those cited for Delphi, even though the panelists' identities are known to one another and opinions are expressed both in writing and verbally. The reason for the similarities lies in the common feature of controlled interaction. However, those who advocate the NGP also cite advantages beyond those of Delphi. These include (1) the stimulation of creative tension by means of the presence of others, silence, and the evidence of activity, and (2) the retainment of the desirable effects of social interaction (e.g., greater number of solutions to a problem, greater amount of knowledge and information available, etc.).

The traditional NGP (as previously described) was slightly modified for use in the present study. The major modification introduced in the study allows the process to continue beyond the initial four phases of activity until an acceptable level of agreement among the panel is obtained. For example, if after the initial four phases

are completed, consensus is not achieved (which was often the case), the process is continued by first reviewing the differences in opinion uncovered in the previous "round," thereby appropriately focusing the panel's efforts toward the resolution of those differences; then, the usual steps of individual comments followed by open discussion and voting are repeated again. This process of consideration and re-consideration is continued until consensus is achieved.

Development of the PTPI

Development of the PTPI was approached in four stages:

(1) Selection of an expert panel of police officers to provide input for developing and quantifying the various components of the PTPI.

(2) Identification, through a Delphi process, of the specific non-medical police-related tasks which should be performed by a police officer at the scene of various medical emergencies.

(3) Identification, through a Delphi process, of those "environmental" factors present at the scene of the emergency which can influence the performance of non-medical tasks.

(4) Weighting of the non-medical tasks through a modified nominal group process.

The following sections describe this developmental process and present the resulting PTPI.

Selection of the Expert Panel

The information needed to develop the PTPI was developed using a panel of experts. This approach was used for three primary reasons. First, a comprehensive set of tasks and factors suitable for use in the research was not found to exist in the available literature. Secondly, quantitative data concerning task performance were also non-existent. Finally, given the absence of previous work in this area, it was felt that a panel of experts composed of persons responsible for effective delivery of police services within the community under study would be most qualified to develop task performance criteria.

The expert panel was selected from within the police department under examination. Candidates for inclusion in the panel were defined as those uniformed[1] officers with considerable experience (> 10 years)

[1]Only the performance of uniformed policemen, not detectives, was examined in the research.

in police operations and/or administration and with records of superior performance. The composition of the panel was predicated on the desire to include a cross section of expertise from the particular police department under investigation. This broad view was accomplished by including administrative, supervisory, and non-supervisory personnel. The panel included the Chief of Police, the Uniform Division commander (major), a shift commander (captain), the Special Operations[1] commander (captain), a traffic control officer (sergeant), a "radar" officer (sergeant), an administrative aide and form training officer (sergeant), and a sector sergeant.[2]

Development of Tasks and Environmental Factors

To facilitate orderly and efficient development of police tasks and environmental factors by the panel of police experts, a preliminary list of tasks and factors was compiled for consideration by the panel. During the compilation of these lists, it became apparent that there was no adequate description of on-the-scene police functions in a format that was general enough to be manageable, yet detailed enough to be measurable. Therefore, the basis for the preliminary development was a series of in depth interviews with various police officers in the department, including both administrative and "street-level" personnel. Information obtained in the interviews was supplemented and verified by direct, on-the-scene observations of actual performance of police officers. Based upon all of these activities, preliminary sets of tasks and environmental factors were developed and submitted to the panel for consideration.

The Delphi Exercise--Round One (R1). As previously mentioned, the Delphi technique was used to allow the panel of experts to modify and refine the preliminary lists of non-medical tasks and environmental factors. In a questionnaire format,[3] panel members were requested to indicate their assessment of the appropriateness of the tasks and factors, stating their reasons for any items considered inappropriate,

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[1]Traffic control; accident investigation.

[2]An "on-the-street" supervisor who is in charge of a number of "beat" cars.

[3]Appendix A contains a copy of the questionnaire used in R1.

and to add any tasks or factors that they felt should have been included.

Panelists were informed that the intent was to determine whether the proposed list of preliminary tasks would adequately represent the non-medical duties of a police officer at the scene of a medical emergency. In the consideration of these duties, panelists were instructed to make the following assumptions:

1. The medical emergency is apparent to the officer upon arrival at the scene.
2. The tasks of interest are restricted to those performed at the scene of a medical emergency (exclusive of medically-related tasks).

In considering the appropriateness of preliminary environmental factors, panelists were requested to evaluate the situational conditions or factors that were thought to influence the performance of tasks at the scene of a medical emergency. It was noted that the presence or absence of these factors at the scene presumably would dictate, at least partially, the course of action a police officer should pursue.

The Delphi Exercise--Round Two (R2). The panelists' responses from the first questionnaire (R1) were summarized and incorporated into a second questionnaire (R2).[1] The second questionnaire requested that the panel members reassess each task and environmental factor for which there was disagreement based upon the group's overall responses and upon individual comments from R1. Group responses were tabulated in terms of percentage considered appropriate or inappropriate. When it appeared that panel members were having trouble interpreting explanations of tasks and factors, comments from project staff were included (and identified as such). Upon completion of the second questionnaire by the panel, responses from R2 were accumulated, compiled, and analyzed for indications of panel consensus.

Weighting of Police Tasks

The next phase of activities involving the police panel concerned the assignment of weights to the duties of a police officer at the scene of a medical emergency. The weights assigned represent the relative

[1]Appendix B contains a copy of the questionnaire used in R2.

importance of each of the tasks and were developed using a modified nominal group process (MNGP).

This process was pursued with the panel over several sessions, which are described in the following sections.

The Initial Panel Session. The initial session of the MNGP was aimed at assigning weights to the list of police tasks, given that these tasks adequately represented the overall "role" of the police officer at the scene of a medical emergency. During this initial session, two rounds of the MNGP were pursued, with less than satisfactory results. Agreement on the relative importance of police tasks was obtained in 40 percent of the weightings after two rounds. Although it was felt that consensus could have been obtained in all instances after further consideration, panel members expressed considerable difficulty in conceptualizing the relative importance of the tasks of an officer's overall job. The panelists justifiably pointed out that the relative importance of tasks was much too dependent on particular situational characteristics (e.g., a traffic accident as opposed to an attempted homicide) to be weighted in aggregate. (A frequently heard comment during the two rounds pursued was that no two situations were alike, and that it was extremely difficult to think in terms of a "general" situation.) Hence, several modifications incorporating the comments of the panel were made in the conceptual approach followed at subsequent panel sessions.

Revised Approach. From the results and comments of the initial session, it was obvious that an approach was called for in the next panel session that would allow the panel to weight tasks according to specific situations. Hence, it was desirable to describe a significant number of representative situations that a police officer might encounter, yet to keep the number of situations described to a reasonable figure. Limited availability of the panel and other factors prohibited the consideration of an extensive number of different situations.

An analysis of the various types of medical emergencies being encountered by the officers participating in the project showed clearly that the situations were generally of four major types, with another type being less prevalent but necessary to consider. These situations, as shown in Table 3, were categorized as (1) a crime scene, (2) an isolated medical emergency, (3) a traffic accident, and (4) a situation

Table 3

CATEGORIES OF POLICE SITUATIONS

A. Crime Scene (e.g., person shot, stabbed, raped, etc.)

1. Not congested; after the fact.
2. Congested; after the fact.
3. Not congested; in progress or suspect fleeing.
4. Congested; in progress or suspect fleeing.

B. Medical Emergency

1. Location poses no threat to life;[1] not congested.
2. Location poses possible threat to life; not congested.
3. Location poses immediate threat to life; not congested.
4. Location poses no threat to life; congested.
5. Location poses possible threat to life; congested.
6. Location poses immediate threat to life; congested.

C. Traffic Accident

1. Location poses no threat to life; not congested; no crime.[2]
2. Location poses possible threat to life; not congested; no crime.
3. Location poses immediate threat to life; not congested; no crime.
4. Location poses no threat to life; congested; no crime.
5. Location poses possible threat to life; congested; no crime.
6. Location poses immediate threat to life; congested; no crime.
7. Location poses no threat to life; not congested; possible felony/misdemeanor.
8. Location poses possible threat to life; not congested; possible felony/misdemeanor.
9. Location poses possible threat to life; not congested; possible felony/misdemeanor.
10. Location poses no threat to life; congested; possible misdemeanor/felony.
11. Location poses possible threat to life; congested; possible misdemeanor/felony.
12. Location poses immediate threat to life; congested; possible misdemeanor/felony.

D. Public Safety (e.g., fire, broken gas line, power lines down, etc.)

1. Location poses possible/immediate threat to life; not congested.
2. Location poses possible/immediate threat to life; congested.

[1] "Threat to life" refers only to the threat posed to the officer, victim, and/or bystanders by virtue of the location of the incident alone.

[2] "No crime" does not eliminate traffic violations.

involving the safety of the public. (Each of the four categories involves situations in which there is some type of medical emergency present. However, the second category is defined as a medical emergency only, and does not include other police-related events.) These four categories of police situations became the basis for the reconsideration of task weighting.

Another modification in the previous approach was necessary before proceeding. As shown in Table 4 , the panel had agreed on a set of environmental factors which might influence an officer's performance of tasks. Though panel consensus for these factors was obtained, the revised approach of considering categories of police situations necessitated an adaptation of these environmental factors. Without some change in these factors, there would have been operational difficulties associated with assessing performance by the original factors. For example, "high traffic density--freeway" might imply a dangerous situation for a police officer controlling traffic around an accident if the traffic were fast-moving or might also imply a relatively safe situation if the traffic were so dense as to completely stop the flow of vehicles. In addition, weather conditions could vastly change the character of any situation. As a result of the many possible interactions between these original factors, it became difficult to associate task performance with environmental factors without considering a prohibitively large number of combinations (e.g., traffic density x location x weather x speed, etc.). Accordingly, the environmental factors were arbitrarily (with the subsequent approval of the panel) restructured and relabeled as "conditions at the scene," as presented in Table 5. The primary changes involved the substitution of "location of incident" for "traffic conditions," "off-road locations," and "weather conditions." With this revised format, performance could be assessed on the basis of the officers' perception of the threat to life posed by the location of the incident. This concept enabled the integration of important subjective factors into a description of the scene not afforded by the previously agreed-upon environmental factors.

Grouping appropriate conditions at the scene in various combinations for each of the four basic categories of police situations produced 24 distinct individual situations (see Table 3). While

Table 4

ENVIRONMENTAL FACTORS

1. Traffic Conditions

   a. High traffic density--freeway
   b. High traffic density--commercial
   c. High traffic density--residential
   d. High traffic density--rural
   e. Low traffic density--freeway
   f. Low traffic density--commercial
   g. Low traffic density--residential
   h. Low traffic density--rural

2. Off-Road Locations

   a. Private residence
   b. Public building--congested
   c. Public building--not congested
   d. Outside areas--congested
   e. Outside areas--not congested

3. Type of Response [1]

   a. Call
   b. Non-call

4. Crime Factors

   a. Crime possible/probable
   b. Felony in progress
   c. Misdemeanor in progress
   d. Crime--after the fact
   e. No crime

5. Public Safety Factors

6. Weather Conditions [2]

[1] Deleted after Round 2 of the Delphi process.

[2] Added after Round 1 of the Delphi process.

Table 5

CONDITIONS AT THE SCENE

1. Location of Incident
   a. Poses immediate threat to life
   b. Poses possible threat to life
   c. Poses no threat to life
2. Persons at Scene
   a. Congested
   b. Not congested
3. Crime Factors
   a. No crime present
   b. Possible misdemeanor--after-the-fact
   c. Possible misdemeanor--in progress or suspect fleeing
   d. Possible felony--after-the-fact
   e. Possible felony--in progress or suspect fleeing

many of these situations were similar, enough of a difference was present in each to allow the panel to more accurately assess the relative importance of the performance of tasks called for in each one.

Specific examples or scenarios of each of the "police situations" were developed in conjunction with police department personnel (not on the panel) to aid in the weighting process (see Table 6). Additionally, tasks that should be performed by an officer in each of the situations were identified. To enhance the efficiency of the weighting procedure, some of the similar tasks were grouped into "task sets," thereby decreasing the number of items to be weighted separately. (Individual tasks, as well as groups of two or more tasks, are hereinafter referred to as "task sets.") Consequently, an officer's performance is assessed in terms of "task sets" rather than upon "individual" tasks. (It should be noted that the performance of any one task within a multiple task set is judged to constitute full performance; hence, full credit, i.e., the entire weight assigned to a task set, is given when calculating a performance score.)

Given these modifications, the panel was convened a second time to reconsider the assignment of weights to tasks according to particular situations.

Subsequent Panel Sessions. At the beginning of the second session, the overall purpose of the research project was again summarized for the panel, and the revised approach of the panel sessions was discussed. Additional comments made to the panel included a review of the rating scheme to be employed and a discussion of several assumptions to be utilized by each panel member in the weighting process. The assumptions used were as follows:

1. An illness or injury is present, either by itself, or in addition to a police situation. However, at this time only, the tasks performed at the scene of the emergency should be considered. Assume that the medical emergency has already been handled.
2. Only one officer is present at the scene.
3. The officer does not know how long he has to wait for additional resources. However, he is aware that time is limited and he must order his priorities accordingly.
4. The sequence in which the tasks are performed is independent of the length of time available.

Table 6

EXAMPLES OF POLICE SITUATIONS

A. Crime Scene (e.g., person shot, stabbed, raped, etc.)
   1. Person shot in private residence . . . perpetrator gone on arrival.
   2. Person shot in a place of business (e.g., Majik Market) or on a crowded street . . . perpetrator gone on arrival.
   3. Person injured in a domestic situation . . . spouse flees upon arrival of unit.
   4. Person shot in holdup of supermarket . . . perpetrator leaving scene when unit arrives.

B. Medical Emergency (e.g., Signal 66, 52, etc.)
   1. Person has heart attack at home.
   2. (a) Person passed out on the side of the road.
      (b) Person electrocuted while working on a television antenna.
   3. Person found unconscious in a motel swimming pool at 2:00 a.m. . . . no persons around who are able to assist.
   4. (a) Person down in a shopping mall.
      (b) Child has heat stroke while playing ball.
   5. Person found unconscious in the parking lot of a shopping center . . . crowd gathers.
   6. Person drowning in a motel swimming pool . . . crowd gathers.

C. Traffic Accident (e.g., Signal 41-I, 43-I, 47)
   1. Person injured when vehicle runs off Flat Shoals Road into tree.
   2. (a) Person injured in two-car collision on Memorial Drive at Columbia at 3 p.m. . . . moderate traffic . . . light rain.
      (b) Person injured in one-car collision in median of I-285 . . . no traffic blockage.
   3. Person injured in wreck occurring on a rainy, overcast day in the middle lane of I-285 at 11 p.m.
   4. Person injured in two-car collision in shopping center parking lot . . . crowd gathers.
   5. Motorcyclist injured when he collides with automobile on La Vista at Northlake at 2 p.m. . . . crowd gathers.
   6. Person injured in three-car collision in outside lane if I-285 at 10:30 a.m. . . . medium to heavy fast-moving traffic.
   7. Person injured in collision with parked car on residential street . . . driver intoxicated.
   8. Person injured in two-car collision on the crest of a hill on Boulder-crest Road . . . one driver intoxicated.
   9. Person injured in collision with utility pole . . . live wire on automobile . . . driver intoxicated.
   10. Drunk driver crashes into convenience store . . . person down.
   11. Motorcyclist injured when he collides with automobile on La Vista at Northlake at 2 p.m. . . . crowd gathers . . . driver intoxicated.
   12. Person injured in three-car collision in outside lane of I-285 at 10:30 a.m. . . . medium to heavy, fast-moving traffic . . . driver intoxicated.

D. Public Safety (e.g., fire, broken gas line, power lines down, etc.)
   1. (a) Person injured in rural house fire.
      (b) House filled with gas fumes . . . person down.
   2. (a) Person injured in fire in apartment building . . . crowd gathers.
      (b) Fire in a department store . . . crowd gathers.

5. Some of the tasks are grouped into "task sets." Each task set is composed of a group of related tasks. The officer will perform some or all of the tasks in a set according to the needs of the situation.

Instructions for the weighting procedure called for panel members to subjectively assess the relative importance of tasks by assigning a rating for each task set on the basis of a zero-to-one hundred (0-100) scale, with a score of 100 representing the most important task set and a score of 0 representing a task set having no importance at all. It was pointed out that more than one task set could be assigned the same score, but that equal ratings for different task sets implied equal importance, and should be assigned accordingly.

Examining one situation at a time, the process consisted primarily of five basic activities: (1) silent generation of numerical weights by individual panel members, (2) individual comments in round-robin fashion on these weights, (3) feedback of numerical results to the panel, (4) overall discussion of weights and opinions, and (5) another rating (if necessary) based on the three preceding steps.

During the silent generation phase, each panelist was requested to make a numerical assessment of the relative importance of individual task sets for corresponding police situations. These assessments were made for each task set of the situation under consideration and were recorded on preprinted forms. Information from the forms was transferred to overhead transparencies for visual display, making the range of scores readily apparent.

Panel members were next requested to state the reasons for their ratings for each task set. Ratings and comments were received in round-robin fashion, without interruption from other panelists.

Recognizing that it would be extremely difficult to obtain unanimous numerical agreement on the importance of many, if not all, particular task sets, consensus was defined in terms of a "truncated range." The truncated range (TR) was determined by eliminating the highest and lowest individual scores, and then considering the range of the remaining six central scores. This served to eliminate the extreme responses, both high and low, yet still gave a fair representation of central group response. Hence, as a means of expressing the central tendency of the group, the TR from each Round (R1, R2, . . .) was also noted and displayed separately for each task set.

Following the feedback and display of numerical ratings, and the highlighting of the TR and the range of scores, a brief discussion period was allowed, if necessary (i.e., if there were a TR greater than 20 for any one task set).[1] During this discussion period, the panel was urged to concentrate on resolving extreme differences of opinion as reflected by individual ratings. In those cases where reassessments were warranted, the above sequence of activities was repeated until consensus was obtained for each task set rating in a given situation.[2]

After reaching consensus on the weights assigned to all the task sets for one scenario, the panel then considered the tasks for the next scenario, adhering to the same general pattern of silent generation of weights, round-robin comments from panel members, feedback of numerical results, open discussion (if necessary), and additional ratings (as appropriate).

The consideration of all of the situations required two separate convenings of the panel. Additional panel activities involved the weighting of tasks associated with providing assistance to uninjured parties at the scene of a medical emergency and an assessment of the panel's satisfaction with the MNGP and with the results of the process.

The performance of the tasks associated with "assistance to uninjured parties" could be required in any one of the 24 situations shown in Table 3 in which there are uninjured parties present. Rather than to multiply drastically the number of situations to be considered by the inclusion of an uninjured party at any one of the 24 situations, it was decided to weight separately the tasks associated with helping uninjured parties. The procedure followed was the same as for all of the 24 situations, but in this case the "situation" was one that required some assistance to uninjured parties.

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[1] Specific situations in which any one task set had a TR value greater than 20 were reassessed until consensus was reached. The reconsideration of all task sets corresponding to a specific situation when any one or more sets had a TR greater than 20 was necessitated by the interdependency of the task sets.

[2] Ratings beyond R1 were not preceded by round-robin comnents, but followed immediately after "feedback" and "overall discusion."

Table 7

FINAL TASK WEIGHTS

Situations / Task Sets	Crime Scene				Medical Emergency						Traffic Accident												Public Safety	
	A-1	A-2	A-3	A-4	B-1	B-2	B-3	B-4	B-5	B-6	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C10	C11	C12	D-1	D-2
Traffic Control Crowd Control	*	83	*	66	*	*	*	86	93	95	71 **	88 **	96 **	84	91	95	80 **	91 **	98 **	89	99	99	*	94
Preservation of the Scene	100	100	88	79	*	*	*	*	*	*	70	73	70	70	76	75	84	88	88	88	88	80	*	*
Protection of Injured and their Property	71	83	56	73	71	93	93	83	94	100	80	95	99	75	95	100	78	95	100	85	95	100	99	93
Communication	90	88	95	98	98	98	93	95	93	98	100	100	100	98	99	100	98	99	100	100	100	100	100	100
Identification	69	73	90	88	*	*	*	*	*	*	71	71	75	65	76	74	86	80	85	84	84	80	68	68
Interrogation	50	53	50	40	*	*	*	*	*	*	55	55	68	50	61	65	76	73	73	73	70	75	55	50
Search	53	53	50	40	*	*	*	*	*	*	*	*	*	*	*	*	78	71	70	70	70	70	*	*
Apprehension Citation and/or Arrest	50	48	95	100	*	*	*	*	*	*	*	*	*	*	*	*	79	81	76	79	79	79	*	*
Obtain Information Preparation of Reports	51	63	50	50	50	60	60	60	60	60	53	53	68	55	60	60	75	65	68	68	68	68	53	50
Evacuation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100	100

*Task set not required in this situation.

**No crowd control required in this situation.

Results

The Delphi Exercise. The final set of police tasks (exclusive of the "assistance to uninjured" tasks) are displayed in the first column of Table 7. (As mentioned previously, some of the tasks were grouped for weighting purposes.) Table 8 presents the "assistance" tasks. Consensus was obtained for all tasks after only two rounds, and, surprisingly, the panel agreed to accept the preliminary task list without modification. Thus, the Delphi study served only to verify, rather than to "develop," the task list.

Table 8
ASSISTANCE TO UNINJURED PARTIES

Task	Weight
Referrals	28
Provide Transportation	30
Arrange for Transportation	30
Exchange Information	28
Custody of Minor(s)	45
Reassure Uninjured	33

The set of environmental factors is shown in Table 4. Modifications introduced by the panel included the elimination of "type of response" and the addition of "weather conditions." As previously indicated, other project considerations later necessitated further modifications in which environmental factors were arbitrarily restructured and relabeled as "conditions at the scene," as presented in Table 5.

The NGP Sessions. The final task weights for each police situation considered in the MNGP sessions are displayed in Table 7. The weights for the "assistance to uninjured" tasks, which were considered separately, are listed in Table 8.

As shown in Table 9, consensus[1] was obtained after two rounds

[1]Since consensus was defined in terms of a TR, the final task weights are expressed in terms of a "truncated average." The truncated average is defined as the mean of scores included in the TR, which in this case is the mean of the four central scores.

in all but two situations. Consensus was obtained on the first round in six of the situations, in addition to the set of "assistance to the uninjured" tasks. It is particularly interesting to note that first round consensus was obtained on five out of six of the "medical emergency only" situations. This high degree of consensus can possibly be attributed to the small number of task sets under consideration (four) and the relative absence of conflict among the tasks being considered.

Table 9

NUMBER OF ROUNDS TO CONSENSUS

Category	Consensus Round		
	1	2	3
Crime Scene	---	2 (50%)	2 (50%)
Medical Emergency	5 (83.3%)	1 (16.7%)	---
Traffic Accident	1 (8.3%)	11 (91.7%)	---
Public Safety	---	2 (100%)	---
Assistance to Uninjured	1 (100%)	---	---

Not unexpectedly, "communication" was rated uniformly high and "reporting" was rated uniformly low with respect to the other tasks. Other tasks were assigned high or low weights depending on the characteristics of particular situations. For example, "preservation of the scene" was given a weight of 100 for a crime scene described as being "after-the-fact"; however, the same task was given ratings of 57 and 79 when a crime was in progress. Conversely, "apprehension, citation, and/or arrest" was given weights of 50 and 48 in an after-the-fact crime scene, whereas weights of 95 and 100 were assigned to this task set for crimes in progress.

Assessment of Panel Satisfaction. As shown in Table 10, the panel expressed a generally favorable degree of satisfaction with both the Delphi and MNGP exercises; however, the MNGP was by far the preferred method of obtaining information. The high ratings accorded to the MNGP were affirmed by the authors' impressions of the enthusiastic manner in which the panel participated in the MNGP sessions.

Table 10

PANEL SATISFACTION

CATEGORY	DEGREE OF SATISFACTION				
	Extremely Dissatisfied	Slightly Dissatisfied	Adequately Satisfied	Very Satisfied	Extremely Satisfied
Police Tasks[1]			7	1	
Environmental Factors[1]			8		
Task Weights[2]				3	3
Delphi Process[1]			8		
Nominal Group Process[2]				4	2

[1]Eight panelists participating.

[2]Six panelists participating.

Panel satisfaction with the results of the study closely paralleled the satisfaction with the type of group process employed. In general, the panel was "adequately satisfied" with the tasks and factors and "very satisfied" with the task weights.

Construction of the Index

Given the sets of weighted tasks for a particular situation under consideration, the PTPI can be calculated. As previously described, the PTPI is an aggregate measure of police-related tasks performed at a particular medical emergency. Basically, this index is composed of the ratio of weighted tasks performed to weighted tasks required, plus an allowance for performance of "assistance to uninjured" tasks. The value of this index ranges from 0 (worst performance) to 1 (optimal performance).

Specifically, the PTPI is defined by the following expressions:

$$PTPI = \text{Task Index} + \text{Special Assistance Allowance}$$
$$= I_j + A$$

where:

$$I_j = \left(\sum_{i=1}^{n} \text{task weight } i\right) \div \left(\sum_{i=1}^{n'} \text{task weight } i\right)$$

where n = no. of tasks performed, n' = no. of tasks required

$$A = (1-I_j)\left(\sum_{i=1}^{m} \text{task weight } i\right) \div \left(\sum_{i=1}^{m'} \text{task weight } i\right), \text{ for } I_j > 0.$$

where m = no. of "assistance to uninjured" tasks performed, m' = total no. of "assistance to uninjured" tasks

The task index I_j is simply the ratio of weighted tasks performed to weighted tasks required for situation j. As indicated previously, 24 possible situations exist; hence, j = 24.

The special assistance allowance, A, represents the weighted proportion of "assistance to uninjured" tasks performed. These tasks are considered as desirable, but not required, for the officers to perform. As formulated, these tasks are seen to be independent of whether or not the officer adequately "gets the job done," and simply represent extra service which the officer can render at his discretion, as time allows. The proportion is weighted by an amount (1-I) which allows the "A" score to be adjusted to account for additional assistance rendered up to a maximum PTPI equal to 1.0, the theoretical optimum. The A score is defined for $I_j > 0$ only.

To more fully illustrate computation of the PTPI, the following case examples are offered.

Case #1. A person is injured in a two-car collision in a shopping center parking lot and a crowd gathers around the scene. A police officer arrives shortly thereafter. Upon arrival at the scene, the officer disperses the crowd from the immediate vicinity and performs first aid. After several minutes, an ambulance arrives and ambulance personnel assume responsibility for the victim. The officer then questions the witnesses and completes an accident report. The officer also arranges for removal of the vehicle after completion of the report and calls a taxi for a

stranded passenger. In his report, the officer correctly notes that the location posed no threat to life, was congested, and that no crime (by definition) was committed.

The PTPI for Case #1 can be calculated in the following manner:

1. Classify the case into one of the 24 categories of police situations (Table 3). In this example, situation C4 (traffic accident--location poses no threat to life--congested--no crime) describes Case #1.
2. Referring to Table 7, identify the tasks required and the corresponding task weights for the particular situation (C4). Compare tasks <u>performed</u> to tasks required as shown in Table II.
3. Compute the task index, I, inserting the task weights from Table 7 (or Table 11) into the equation below:

$$I_{C4} = \left(\sum_{i=1}^{6} \text{task weight } i\right) \div \left(\sum_{i=1}^{7} \text{task weight } i\right)$$

(6 = no. of tasks performed; 7 = no. of tasks required)

$$= (84 + 70 + 98 + 65 + 50 + 55) \div (84 + 70 + 75 + 98 + 65 + 50 + 55)$$

$$= 0.85$$

4. Identify the special assistance (assistance to uninjured) tasks performed and obtain weights from Table 8. In Case #1, "arrange for transportation" (weight = 30) was the only special assistance task performed.
5. Compute the special assistance allowance, A:

$$A = (1-I_{C4})\left(\sum_{i=1}^{1} \text{task weight } i\right) \div \left(\sum_{i=1}^{6} \text{task weight } i\right)$$

(1 = no. of "assistance tasks performed"; 6 = total no. of "assistance" tasks)

$$= (1-0.85)((30) \div (28 + 30 + 30 + 28 + 45 + 33))$$

$$= (1-0.85)(0.15)$$

$$= 0.02$$

Table 11

TASKS PERFORMED VERSUS TASKS REQUIRED--CASE 1

Tasks Required	Weights	Tasks Performed
a. Traffic control and/ or crowd control	84	Crowd control
b. Preservation of scene	70	Preservation of scene before vehicles are moved
c. Protection of injured and their property	75	
d. Communication	98	Arrange for wrecker
e. Identification	65	Identification
f. Interrogation	50	Interrogation
g. Obtain information and/or prepare reports	55	Obtain information; prepare reports

6. Compute the PTPI:

$$PTPI = I_{C4} + A$$

$$= 0.05 + 0.02$$

$$= 0.87$$

It should be noted that the officer had to have a positive I to get any credit for assistance tasks. This precluded the possibility of having an I of zero, performing all six assistance tasks, and thus achieving a perfect score.

Case #2. A person is shot in a private residence. The perpetrator has left the scene before the police arrive. Upon arrival, the officer attends to the victim, ascertains what has transpired (identifies the victim and obtains a description of the perpetrator), and instructs a back-up unit (via radio communications with headquarters) to be on the lookout for the perpetrator. After an ambulance arrives, the officer obtains additional information about the crime and remains on the scene to be sure the area remains undisturbed until the detectives arrive. In his report, the officer notes that the scene was not congested and that a crime was committed prior to his arrival.

The PTPI for Case #2 can be calculated as follows:

1. Classify Case #2 as an A1 situations (crime scene--not congested--after the fact).
2. Referring to Table 7 , identify required tasks and the associated task weights for situation A1. Compare tasks performed to tasks required as shown in Table 12.
3. Compute the task index, I:

$$I_{A1} = \left(\sum_{i=1}^{5 = \text{no. of tasks performed}} \text{task weight } i\right) \div \left(\sum_{i=1}^{8 = \text{no. of tasks required}} \text{task weight } i\right)$$

$$= (100 + 90 + 69 + 50 + 51) \div (100 + 71 + 90 + 69 + 50 + 53 + 50 + 51)$$

$$= 0.67$$

4,5. Note that no special assistance tasks were performed. Therefore, the special assistance allowance, A, equals zero (0).

6. Compute the PTPI:

$$PTPI = I_{A1} + A$$

$$= 0.67 + 0$$

$$= 0.67$$

Table 12

TASKS PERFORMED VERSUS TASKS REQUIRED--CASE 2

Tasks Required	Weights	Tasks Performed
a. Preservation of scene	100	Preservation of scene
b. Protection of injured and their property	71	
c. Communication	90	Communication
d. Identification	69	Identification
e. Interrogation	50	Interrogation
f. Search	53	
g. Apprehension and/or citation/arrest	50	
h. Obtain information and/or prepare reports	51	Obtain information; prepare reports

Discussion of the Scores. In the preceding examples, the PTPI equals 0.87 for Case #1 and 0.67 for Case #2. Basically, these scores represent the extent to which the task performance objectives (as implicitly defined by the panel in the weighting process) have been attained. In the two case examples, one could make the following initial interpretations:

1. In Case #1 and Case #2, respectively, 87 percent and 67 percent of the task performance objectives were achieved.
2. The officer in Case #1 completed more of his overall performance objectives than did the officer in Case #2.

Without additional information, it is difficult to make any meaningful interpretations of the PTPI scores beyond the elementary interpretations given above. However, one can obtain a much greater insight into the meaning of the PTPI when the scores are analyzed with respect to the police intervention period, the length of time in which the officer has responsibility for the victim (before the ambulance arrives), and the total time the officer is on the scene. Employing a similar line of reasoning, the PTPI can be analyzed with respect to the FAPI (which has been developed and will be applied in the same manner as the PTPI), thereby quantifying any task performance conflicts and more clearly delineating the relationships between the performance of traditional police duties and the administration of first aid. Further insight into these and other relationships can be obtained by comparing the PTPI (and the FAPI) to various behavioral factors. These behavioral factors, which include the assessment of the police officer's job satisfaction and the officer's attitude toward the administration of first aid, were shown to have a significant influence upon the performance of police versus first aid tasks.

Development of the FAPI

Development of the FAPI was approached in three stages:

(1) Selection of an expert panel of EMTs and EMT instructors to provide weights for the conditions and tasks.

(2) Identification of patient conditions and the associated first aid tasks, for which the police officer receives training.

(3) Weighting of the conditions and tasks through a modified nominal group process.

The following sections describe this developmental process and present the resulting FAPI.

Selection of the Expert Panel

The panel members were chosen on the basis of their knowledge of, and direct experience with, first aid procedures and pre-hospital emergency care. In addition to these primary requirements, it was desired that panel members be able to easily relate, by virtue of their field care experience, to the performance of a police officer in administering first aid care to emergency victims.

Employing these subjective criteria, a seven-member panel of experts was chosen to assist in the study. All of the panel members had completed advanced training in first aid and emergency care and were certified as either EMTs or EMT instructors. The combined experience in emergency medical care of the panel members totaled approximately 80 years.

EMT instructors from local, regional, and state levels were present on the panel, with experience in teaching varying levels of first aid and EMT courses. Rounding out the remainder of the panel were four EMTs (one of whom is also an EMT instructor) from two of the major ambulance services in the metropolitan Atlanta area.

Serving as a consultant to the panel during the weighting process was a physician in charge of the surgical emergency clinic at one of the major hospitals in Atlanta. The consultant was available to the panel to assist in answering questions relating to medical priorities, appropriateness of tasks for specific conditions, and other matters.

Identification of Patient Conditions and First Aid Tasks

As described in Chapter 2, the police department participating in the research project presently offers a 40-hour advanced first aid course to all of its uniformed officers as a part of their academy training. The standard text for the course is Advanced First Aid and Emergency Care by the American National Red Cross. This text is supplemented in the course by various films, exhibits, demonstrations, and other exercises selected by the course instructor.

An analysis of the course was directed toward identifying (1) those emergency medical conditions which the police officer is trained to recognize and treat, and (2) the appropriate individual tasks to be performed for specific patient conditions, according to the content of the course. Major patient conditions that were identified as a result of the course

analysis, along with the corresponding tasks to be performed for those conditions, are included in Table 13. As shown in the table, first aid tasks were grouped according to the required procedures for specific conditions, resulting in an overall group of first aid procedures for each patient condition.

To facilitate the weighting process, tasks were further grouped into "procedure sets,"[1] due to the interdependency and similarity of some of the tasks. This grouping is illustrated in Table 13, where the tasks called for in the condition "absent breathing" have been grouped where warranted. As shown, one procedure set includes the following tasks: (1) establish airway, (2) maintain airway, and (3) give artificial respiration. The intuitive appeal of this grouping is evident when one considers that the same type of patient condition in two different instances may warrant varying degrees of performance of the corresponding procedure set. For example, establishing the airway for one victim with "absent breathing" may be sufficient to restore breathing; whereas, for another victim, artificial respiration may also be required.

Weighting of the Procedure Sets and Patient Conditions

The panel was convened on three separate occasions to consider the weighting of procedure sets and the categorization and weighting of emergency conditions. At the beginning of the first session, the panel was oriented to the overall purpose of the research project, and the desired outputs of the panel sessions were discussed. Initial comments made to the panel regarding these outputs included a general description of the group process to be followed, an explanation of the rating scheme to be employed, and a discussion of several assumptions to be utilized by each panel member in the weighting process.

Instructions for the weighting procedure called for panel members to subjectively assess the relative importance of procedure sets for specific conditions by assigning ratings for these sets on the basis of a zero-to-one hundred (0-100) scale, with a score of 100 representing the most important procedure set and a score of zero representing a

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[1]For ease of reference and for consistency in terminology, each task, or each sub-group of tasks, is referred to as a "procedure set." As a result of this terminology and the grouping process, weights are obtained for procedure sets rather than for individual tasks.

Table 13
FIRST AID TASK WEIGHTS

PROCEDURE SET \ CONDITION	Absent Breathing	Abnormal or Difficult Breathing	Abnormal Pulse	Absent Pulse	Chest Pain	Dislocations	Fractures	Shock	Bleeding (Minor to Severe)	Bleeding (Severe)	Bleeding (Uncontrollable)	Impaled Object	Unconsciousness	Dizziness or Fainting	Epileptic Seizure	Heat Stroke	High-Temperature (Convulsions)	Stroke	Burns (Chemical)	Burns (Thermal)	Poisoning	Bites and Stings	Heat Exhaustion	Emergency Childbirth
Establish airway Maintain airway Artificial respiration	100	100	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*	*	*	*
Check breathing Establish airway Maintain airway Artific. respiration	*	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*	*	*	*	*	*	*	*	*
CPR	*	*	*	100	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monitor pulse and respiration	93	99	100	*	100	*	*	100	99	100	100	*	98	100	98	100	100	100	100	100	100	100	100	99
Check pulse	98	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*	*	*	*	*	*	*	*	*
Position victim for comfort Loosen clothing	*	92	82	*	91	96	92	94	89	93	80	98	*	99	99	94	90	90	81	89	90	89	89	98

Table 13 (Cont'd)
FIRST AID TASK WEIGHTS

PROCEDURE SET \ CONDITION	Absent Breathing	Abnormal or Difficult Breathing	Abnormal Pulse	Absent Pulse	Chest Pain	Dislocations	Fractures	Shock	Bleeding (Minor to Severe)	Bleeding (Severe)	Bleeding (Uncontrollable)	Impaled Object	Unconsciousness	Dizziness or Fainting	Epileptic Seizure	Heat Stroke	High Temperature (Convulsions)	Stroke	Burns (Chemical)	Burns (Thermal)	Poisoning	Bites and Stings	Heat Exhaustion	Emergency Childbirth
Calm and reassure victim	*	*	99	*	*	*	*	*	*	*	*	*	*	100	99	98	100	100	*	*	*	*	100	100
Calm and reassure victim Restrict movement	*	98	*	*	100	96	100	100	*	*	*	100	*	*	*	*	*	*	100	100	99	*	*	*
Calm and reassure victim Restrict movement Immobilize injury	*	*	*	*	*	*	*	*	100	99	96	*	*	*	*	*	*	*	*	*	*	100	*	*
Apply splint Immobilize injury	*	*	*	*	*	98	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Apply splint Straighten fracture Immobilize injury	*	*	*	*	*	*	100	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Elevate feet	*	*	*	*	*	*	*	97	*	*	*	*	*	54	*	*	*	*	*	*	*	*	3	*

Table 13 (Cont'd)
FIRST AID TASK WEIGHTS

PROCEDURE SET / CONDITION	Absent Breathing	Abnormal or Difficult Breathing	Abnormal Pulse	Absent Pulse	Chest Pain	Dislocations	Fractures	Shock	Bleeding (Minor to Severe)	Bleeding (Severe)	Bleeding (Uncontrollable)	Impaled Object	Unconsciousness	Dizziness or Fainting	Epileptic Seizure	Heat Stroke	High Temperature (Convulsions)	Stroke	Burns (Chemical)	Burns (Thermal)	Poisoning	Bites and Stings	Heat Exhaustion	Emergency Childbirth
Elevate head	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	85	*	0	*	*	*	*	*	*
Keep victim warm	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	92
Fluids by mouth	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	90	0
Keep victim warm Fluids by mouth	*	*	*	*	*	*	*	94	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lower body temperature	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100	100	*	*	*	*	*	0	*
Control bleeding Direct pressure Pressure on artery Elevation	*	*	*	*	*	*	*	*	98	100	100	*	*	*	*	*	*	*	*	*	*	*	*	*

Table 13 (Cont'd)
FIRST AID TASK WEIGHTS

PROCEDURE SET \ CONDITION	Absent Breathing	Abnormal or Difficult Breathing	Abnormal Pulse	Absent Pulse	Chest Pain	Dislocations	Fractures	Shock	Bleeding (Minor to Severe)	Bleeding (Severe)	Bleeding (Uncontrollable)	Impaled Object	Unconsciousness	Dizziness or Fainting	Epileptic Seizure	Heat Stroke	High Temperature (Convulsions)	Stroke	Burns (Chemical)	Burns (Thermal)	Poisoning	Bites and Stings	Heat Exhaustion	Emergency Childbirth
Apply compress/ bandage	*	*	*	*	*	*	*	*	94	99	98	*	*	*	*	*	*	*	*	*	*	*	*	*
Clean wound	*	*	*	*	*	*	*	*	0	0	0	*	*	*	*	*	*	*	*	0	*	0	*	*
Immobolize impaled object Immobolize injury	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*	*	*	*	*	*	*	*	*	*
Remove contaminated clothing	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	78	*	*	*	*	*
Flush with water	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*	*	*
Burn sheet	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	78	100	*	*	*	*

Table 13 (Cont'd)
FIRST AID TASK WEIGHTS

PROCEDURE SET / CONDITION	Absent Breathing	Abnormal or Difficult Breathing	Abnormal Pulse	Absent Pulse	Chest Pain	Dislocations	Fractures	Shock	Bleeding (Minor to Severe)	Bleeding (Severe)	Bleeding (Uncontrollable)	Impaled Object	Unconsciousness	Dizziness or Fainting	Epileptic Seizure	Heat Stroke	High Temperature (Convulsions)	Stroke	Burns (Chemical)	Burns (Thermal)	Poisoning	Bites and Stings	Heat Exhaustion	Emergency Childbirth
Dilute poisoning Induce vomiting	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100	*	*	*
Assist with delivery	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100

*Not considered for this condition.

procedure set having no importance at all. It was pointed out that more than one procedure set within a given patient condition could be assigned the same score, but that equal ratings for differenct procedure sets implied equal importance, and should be assigned accordingly.

The assumptions specified for the panel to use in the weighting process were as follows:

1. Only one police officer is present on the scene to perform first aid.
2. Each officer has received 40 hours of advanced first aid training.
3. The officer will render first aid but will not transport the victim.
4. Although the officer administering first aid is aware that additional medical resources (ambulance crew) will eventually take responsibility for rendering emergency care, he does not know how long he will have to wait for them.
5. The sequence in which the first aid procedures are performed is independent of the length of time available.

With these general instructions and assumptions, the panel considered (1) the ratings of procedure sets, (2) the assignment of emergency conditions into four priority categories, and (3) the weighting of the four priority categories, in that order.

Weightings of Procedure Sets. A modified NGP (MNGP), such as that used in the development of the PTPI, was employed in the weighting of the FAPI procedure sets. The format followed in rating the procedure sets in the first two rounds varied slightly from that adhered to in subsequent rounds. Hence, the two formats are described separately.

Rounds One and Two. During the silent generation phase of the MNGP, each panelist was requested to make a numerical assessment of the relative importance of individual procedure sets for corresponding patient conditions. These assessments were made for each of the medical conditions under consideration and were recorded on individual, preprinted forms.

Panel members were next requested to state their ratings, giving verbal justifications of those ratings, for each procedure set, taking one patient condition at a time. Ratings and comments were received in round-robin fashion, without interruption from other panelists, allowing approximately one minute for each panelist.

Each panelist's ratings were displayed via an overhead projector

in full view of the panel, making the range of scores readily apparent. As a means of expressing the central tendency of the group, the median score from R1 was also noted and displayed separately for each procedure set.

Following the feedback and display of numerical ratings, and the highlighting of the median and range of scores, a brief discussion period was allowed. During this discussion period, panel members could respond to previously stated comments of other panelists, elaborate on points they had previously made, indicate their agreement or disagreement with numerical scores awarded to specific procedure sets, or seek guidance from the medical consultant assisting the panelists. The panel was urged to concentrate, however, on resolving extreme differences of opinion as reflected by individual ratings.

After the overall discussion period, a second silent rating (R2) of each procedure set was made and recorded on the pre-printed form. The next patient condition and corresponding procedure sets were then considered, adhering to the same general pattern of round-robin comments, feedback of results, overall discussion, and a second rating.

Interim Analysis of R1 and R2. In the interval between the first and second convening of the panel, results from R1 and R2 were analyzed by project staff, central tendencies assessed, and decisions made as to which conditions warranted further reassessments. Conditions and procedure sets to be reassessed were chosen on the basis of the degree of consensus of panel ratings. Consensus was defined as a TR of 15 points.[1]

The reconsideration of all procedure sets corresponding to a specific condition when any one or more sets had a TR greater than 15 was necessitated by the interdependency of the procedure sets.

Succeeding Rounds. Weightings of procedure sets (for conditions in which consensus was not reached) at the second convening of the panel followed a format similar to that of the first panel session,

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[1]A TR of 15 was chosen as the consensus criterion for the FAPI (versus a TR of 20 for the PTPI) because the investigators felt that weighting first aid tasks was more straightforward than weighting police tasks and thus it would be reasonable to expect a higher degree of consensus with respect to the first aid tasks weights.

with slight modifications made to expedite the process. The major change in format involved the sequence of panel activities, while minor changes were made in the information "fed back" to the group.

Panel activities concerning the weightings of procedure sets during the second panel meeting consisted of the following basic activities: (1) feedback of previous panel responses; (2) round-robin comments from panel members; (3) a third rating of individual procedure sets; (4) open discussion (if necessary); and (5) additional ratings (as appropriate).

Conditions warranting reassessments were considered one at a time, generally repeating the above sequence of activities until consensus was obtained for each procedure set rating within each condition.[1] (Information initially fed back to the group included individual R2 scores, as well as the R2 range for each procedure set, expressed as a single number. Feedback of the median was discontinued based upon its apparent limited value to the panel.)

Categorization and Weightings of Patient Conditions. Given a medical emergency in which a victim has sustained multiple injuries or has multiple complaints, a decision must be made concerning which injury or complaint should receive priority with respect to treatment. Treatment priorities among the various patient conditions can be recognized and quantified by attaching some measure of importance or "weight" to each condition according to a criterion such as the "relative need for immediate emergency medical treatment."

The general approach taken in weighting the emergency conditions involved (1) subdividing the set of conditions into four major categories reflective of different treatment priorities; and (2) quantifying the treatment priorities by assigning a weight to each category. In other words, condition categories rather than individual conditions were weighted. The reasons for approaching the weighting process in this manner were to minimize the differences in condition priorities and weights due to small variations in specific situations and to correspondingly make clearer, although less detailed, distinctions among treatment priorities. In addition, since examples of such

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[1]Ratings beyond R3 were not preceded by round-robin comments, but followed immediately after "feedback" and "overall discussion."

categorizations occur frequently in EMS systems (e.g., Mode One Emergency--lights and siren to scene; Mode Two Emergency--lights only; etc.), the conceptual basis for weighting categories is a familiar one for the panel members.

The process through which the conditions were categorized began with a silent generation phase. Panel members were requested to classify each emergency condition into one of four categories. These categories, as defined by project staff, are presented in Table 14. (As shown in Table 15, the emergency conditions that were categorized in this phase vary somewhat from those conditions considered in the previous ratings of procedure sets. These minor changes were necessary in order to provide enough specificity to allow appropriate and consistent categorizations.)

Table 14

CONDITION CATEGORIES

Category	Definition
I	First (and highest) priority. Injuries in this category *will* cause death or permanent disability if not treated within four to six minutes. In cases of multiple injuries, injuries in this category should be treated before any injuries in any other category. (A person with one or more Category I conditions could be considered to be in *critical* condition.)
II	Second priority. Injuries in this category *may* cause death or permanent disability if not treated within four to six minutes. However, in cases of multiple injuries, Category I injuries *must* be treated before injuries in this category, in multiple injury situations. (A person with one or more Category II conditions could be considered to be in *serious* condition.)
III	Third priority. Injuries in this category *seldom* cause death or permanent disability if not treated within four to six minutes. In cases of multiple injuries, Category I and Category II conditions *must* be treated before injuries in this category. (A person with one or more Category III conditions could be considered to be in *guarded* condition.)
IV	Fourth (and lowest) priority. Injuries in this category *never* cause death or permanent disability unless aggravated by a higher-level condition. All conditions in any other category should be treated before any Category IV conditions. A person with one or more Category IV conditions could be considered to be in *reasonably stable* condition.)

Table 15

CATEGORIZATION OF CONDITIONS

CATEGORY	CONDITIONS	WEIGHT
I	Absent breathing Absent pulse Bleeding--uncontrollable Poisoning Puncture wounds--head and torso Shock	100
II	Abnormal/difficult breathing Abnormal pulse Bleeding--severe Burns--chemical (eye) Burns--chemical (other areas) Burns--thermal (3rd degree, greater than 15%) Chest pain Heat stroke Impaled objects--head and torso Unconsciousness	90
III	Bites and stings Burns--thermal (2nd degree, greater than 15%) Burns--thermal (3rd degree, less than 15%) Dislocations Emergency childbirth Epileptic seizures Fractures (back, neck) Fractures (other areas) High temperature convulsions Impaled objects--extremities Puncture wounds--extremities Semi-consciousness Stroke	75
IV	Bleeding--minor/moderate Burns--thermal (1st degree, any extent) Burns--thermal (2nd degree, less than 15%) Dizziness/fainting Heat exhaustion Nausea/vomiting	28

After the initial categorizations were made, the results were compiled, consensus (defined as at least five "votes" for the same category) determined, and the distribution of "votes" for each category per condition displayed. For each condition for which consensus was not immediately reached, each panel member was asked to state his reasons, in round-robin fashion, for particular category assignments. A short discussion period followed in which stated differences were resolved, after which the condition was re-categorized by the panel. This process was continued until consensus was reached on the categorization of each condition.

After classifying the individual emergency conditions into one of the four categories, each category was assigned a weight, indicative of its relative priority. These weights were obtained in a manner similar to the process used in obtaining weights for procedure sets. Consensus was defined as agreement among the panel as represented by a truncated range of no more than 15 for each of the four categories under consideration.

Results

Procedure Sets. The final results (expressed as the average of the five[1] central scores for each procedure set) of the weighting process in regard to the first aid tasks and procedure sets are shown in Table 13. Upon review of these results, it is immediately evident that the panel considered most of the procedure sets within corresponding conditions to be of equal or near-equal importance, as well as considering the majority of all of the procedure sets to be of primary importance in the treatment of the specified patient conditions.

The high degree of importance for most of the procedure sets is of course reflected in the high numerical ratings assigned to them. Notable exceptions to this "high degree of importance" include (1) the procedure set "clean wound" in the three "bleeding" conditions, in "bites and stings," and in "thermal burns"; (2) the procedure set "elevate feet" in the conditions "dizziness/fainting" and "heat

[1]In some instances, the final weight for various procedure sets is expressed as the average of four central scores, rather than five. This adjustment was necessitated by the absence of one panel member (who was called away to respond to a medical emergency) during a few late-round considerations.

exhaustion"; (3) "elevate head" in the condition "stroke"; (4) "administer fluids" in "emergency childbirth"; and (5) "lower body temperature" in "heat exhaustion."

It would be remiss not to mention that a few procedure sets were added for, and a few omitted from, consideration between R2 and R3. These additions and deletions were few, however, and were made for the purposes of thoroughness and clarification. Slight modifications in terminology (e.g., from "restrain victim" to "restrict movement") were also made in a few instances.

While the assessment and quantification of the relative importance of first aid tasks for emergency conditions is in itself of some interest and importance, it is particularly interesting to note the values assigned to some of the "softer" tasks. These "softer" tasks include calming and reassuring the victim and positioning the victim for comfort. Both of these tasks, which upon first glance may appear to be of little significance, were felt by the panel to be of major importance. It was noted by the panel that the performance of these tasks, in many instances, might actually result in easing the victim's condition, manifesting itself in the lowering of pulse and respiratory rates, normalizing of blood pressure, and in other ways. The significance of the numerical assessments accorded these tasks to the role that a police officer might perform at the scene of a medical emergency is of further interest, and was cited specifically on numerous occasions by the panel.

Classification of Patient Conditions. The final classifications of patient conditions into priority categories are shown in Table 15. Final classifications were made for 8 (23 percent) of the patient conditions after an initial assessment by the panel; for 24 (69 percent after the second round; and for 3 (8 percent) after a third round.[1] As evidenced by the ease with which consensus on condition classifications was obtained, the categories as defined appear to be sufficiently appropriate to allow for some broad assessment of the relative treatment priorities associated with several emergency medical conditions.

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[1]Final category assignments for more patient conditions would have been completed earlier had not one panelist made his initial assignments on the basis of his own category definitions rather than on those definitions furnished to the panel members. (This discretion was noted by the panelist during the round-robin comments associated with this task.)

Although consensus was defined as 5 out of 7 votes for one category, and final classifications assigned on this basis, unanimous agreement was present on the classification of 21 (60 percent) of the total number of patient conditions after the final iteration. In cases where some difference of opinion still remained after the final round, the differences were slight, and the corresponding classifications were usually in adjacent categories (e.g., classifications in the adjacent Categories II and III, rather than in Categories II and IV.) For 3 of the 6 Category I classifications, there was unanimous agreement by the panel; for Category II, there was unanimous agreement on 7 out of 10 of the condition classifications; for Category III, unanimity on 8 out of 13; and for Category IV, on 3 out of 6 (50 percent).

Category Weightings. Final ratings for each of the four condition categories are shown in Table 15. The scores shown are the average of the four[1] central ratings of the panel for each category. Consensus on the ratings was obtained after only three rounds, indicating perhaps the intuitive appeal associated with assessing and weighting condition categories in regard to treatment priorities. The spread between the scores illustrates that the panel was able to associate the different categories with distinct levels of treatment priorities. Judging from the weights for each category, coupled with the distribution of the weights, it appears that the division of conditions into four major categories is generally appropriate (although it is entirely possible that the panel could have adequately distinguished priorities among more than four categories).

It is interesting to note that the panel generally felt that Category IV conditions were of such nature that the ultimate outcome of the emergency victim with only Category IV conditions depended very little on the performance of the required first aid tasks for those conditions. In view of this assessment, the panel assigned a weight of 28 to this category, reasoning perhaps as one panelist, who suggested that ". . . just to kiss it [the injury] and make it well is worth a [score of] 25."

While it is recognized that the weights assigned are of an arbitrary nature, it is felt that the scores are valid for purposes

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[1]Scores are the average of the four central ratings, rather than five, due to the absence of one panelist during this phase of the process.

of the project, and may be generalizable for, and applicable to, other areas as well.

The Group Process. As for the process itself, the staff found it to be an efficient and effective technique for obtaining responses from panel members in a controlled, structured format. Interrogation of the panelists concerning their satisfaction with the process and with the results of the process indicated that panel members shared this general positive assessment of the process as well. The group's satisfaction with both the process and the output of the process is illustrated in Table 16, which summarizes some of the results of two separate questionnaires administered to the panel.

Table 16
PANEL SATISFACTION

	Degree of Satisfaction				
	Extremely Dissatisfied	Slightly Dissatisfied	Adequately Satisfied	Very Satisfied	Extremely Satisfied
Group Process			1	3	3
Results				1	6

Construction of the Index

Given weights for the procedure sets and condition categories, the FAPI can be calculated. To illustrate this calculation procedure, consider a situation in which a victim is involved in an automobile accident. As a result of the accident, the victim sustains an injury to his forearm causing severe bleeding. In addition, it is thought that the victim may have a fractured fibula. A police officer arrives on the scene of the accident two minutes after receiving a call for assistance. The officer elevates the victim's arm and applies a compress to the wound in an attempt to control the bleeding. He also calms the victim and tries to make him as comfortable as possible. Before the officer has time to perform additional first aid tasks, an ambulance arrives and assumes responsibility for the victim. The FAPI for this particular incident would be calculated[1] as follows:

[1]The calculations shown here are for illustration only. In practice, the FAPI is calculated using a computer program which has provisions for identifying and scoring not only required treatment, but also contraindicated procedures.

1. Identify conditions present. Obtain appropriate condition category weights from Table 15.

Condition	Category	Weight
Fractured fibula	III	75.0
Severe bleeding	II	90.0

2. For each condition present (fracture and severe bleeding), identify tasks required and the associated task weights from Table 13. Compare tasks performed to tasks required as shown in Table 17.

Table 17

TASKS PERFORMED VERSUS TASKS REQUIRED

Condition	Tasks Required	Weight	Tasks Performed
Fracture	a. Position victim for comfort and/ or loosen clothing.	92.0	Position victim for comfort.
	b. Calm and reassure and/or restrict movement.	100.0	Calm and reassure.
	c. Apply splint and/ or straighten fracture and/or immobilize.	99.6	
Bleeding--Severe	a. Control bleeding.	100.0	Direct pressure, elevation.
	b. Apply compress/ bandage.	99.0	Apply compress.
	c. Monitor pulse and respiration.	100.0	
	d. Position victim for comfort and/or loosen clothing.	93.2	Position victim for comfort.
	e. Calm and reassure and/or restrict movement and/or immobilize.	99.0	Calm and reassure.

3. Insert the weights obtained in steps 1 and 2 into the following equation.

$$FAPI = \sum_{i=1}^{n} \left[(\text{condition weight } i \div \sum_{i=1}^{n} \text{condition weight } i)\left(\sum_{j=1}^{m} \text{procedure weight } j \div \sum_{j=1}^{m'} \text{procedure weight } j\right)\right]$$

n = no. of conditions present

m = no. of procedures performed

m' = no. of procedures required

$$= (75.0/75.0+90.0)\,[(92.0+100.0)/92.0+100.0+99.6)] + (90.0/75.0+90.0)\,[(100.0+99.0+93.2+99.0)/(100.0+99.0+100.0+93.2+99.0)]$$

$$= .73$$

For the preceding example, the FAPI equals 0.73. In and unto itself, this score has little meaning beyond the fact that the "treatment objective" (as implicitly defined by the panel in the weighting process) has been 73 percent achieved; or, from another viewpoint, a score of greater than 0.73 indicates that the treatment objective has been achieved to a greater extent than would a score of less than 0.73. However, the FAPI gains additional meaning when analyzed with respect to the length of time available in which the officer has to perform first aid. In addition, the FAPI can be analyzed with respect to the PTPI in order to more clearly delineate the relationship between the performance of traditional police tasks and the administration of first aid. Further insight into this and other relationships is obtained by comparing the FAPI (and the PTPI) to various behavioral factors (e.g., attitudes of police towards EMS).

Summary

This chapter has presented the development of the PTPI and the FAPI. Those indices were primarily based on the consensus judgments of expert panels of police, EMTs, and EMT instructors. Consensus of the panels in regard to the components of the PTPI and FAPI was obtained by utilizing a modified nominal group process and the Delphi technique. By virtue of the high degree of consensus obtained and the panel's satisfaction with each of the group processes and with the results of each process, it is believed that the PTPI and FAPI are reasonably valid research tools and that the modified nominal group process was an effective and efficient method for quantification of the parameters included in the indices.

CHAPTER IV

ATTITUDES AND PERCEPTIONS OF POLICE CONCERNING FIRST AID DELIVERY

Behavioral measurements were conducted to meet information requirements for several aspects of the project. Among these were benchmark studies of public knowledge of emergency health care in DeKalb County and DKPD officer response to the inclusion of first aid duties as part of traditional police tasks. The vast majority of time and effort was spent in design and administration of DKPD behavioral instruments. This effort provided the basis for examining correlations between attitudes (as measured in the behavioral study) and actual performance of first aid tasks by specific officers. The public knowledge study is described in Chapter VII. Both questionnaires are included in Appendix C .

Among the crucial questions to be answered in this project were questions concerning the influence of biographic and behavioral variables upon the performance of police first aid tasks. While a knowledge of the "typical" DKPD officer creates understanding of the origin of some behaviors, it does not give any explanatory power until it is ascertained whether linkages exist between first aid delivery behavior and attitudes toward the first aid program itself. Therefore, the importance of this aspect of the research lies in tying together beliefs about first aid and actual first aid delivery behavior.

The delivery and administration of first aid care involves three distinct groups as has been discussed. The primary providers of first aid care in DeKalb County are the EMTs who operate as part of the fire department. The work done by this group has been well-regarded and has fostered a high degree of recognition of the emergency capability of the fire department. The fire department is recognized within the community as being the source from which emergency care can be obtained quickly. Less visible in the first aid context is the police department. However, as primary first aid deliverers in some situations, the police are frequently the first agency to be called. These two public agencies, the police and the fire departments, constitute the most likely first responder services that the

average person will have within the limits of DeKalb County. The third group involved in the administration of first aid care is the recipient group, the general public. This group determines the success or failure of public assistance programs by its willingness to use the provided systems and by its willingness to become educated in the ways public assistance programs may be used. The system then has three component subsystems which must be well-integrated before effective interventions in emergency care can be achieved. These three subsystems clearly overlap in certain ways. It is this interface which is of concern.

Questionnaire Development

Development of the behavioral instruments was begun after the project staff had completed the first aid training program operated by the DKPD and after staff members had ridden a number of full tours of duty with various police officers. With the knowledge of attitudes and operational relationships of the police and the fire departments gained by observation, a number of preliminary questions related to the objectives of the project were developed.

Using the above information and the requirements for behavioral analysis as outlined in the project proposal, six areas of investigation were defined. Three of the areas related to job satisfaction and three related to perceptions of and attitudes toward the first aid component of DKPD police work.

Attitudes Measured by the Questionnaire

The following sections describe the attitudes measured by the questionnaire. The first section of the questionnaire contains biographical data and will be described later.

Section 2 is the Job Facet--First Aid Index and was designed to measure satisfaction with the specific activities involved in the delivery of first aid care by police. Components of this index are relationships with EMTs, visibility of first aid behavior to peers and citizens, and intangible reward derived from first aid behavior. The specific questions used in this section were derived from parts of the Job Descriptive Index of Smith, et al., 1969, and were phrased to elicit responses relevant to the aims of this project. The forced choice answer format used in the Job Descriptive Index was replaced by

a Likert scale in conformity with the usage of other sections. It was felt that by so doing, greater comparability of scores between sections would be achieved and that additivity would become meaningful, allowing the creation of a total index reflecting attitude toward first aid delivery as part of police work.

Section 3 deals with two aspects of the DKPD training program. Primarily it is concerned with establishing what needs exist in the 40-hour first aid training program from those officers who have participated in the program. A secondary concern is attitude toward the first aid training program.

Section 4 examines perceived outcomes of police first aid delivery. There are six subscales in this section, which all measure possible outcome projections. Subscale A is "DKPD Work." This scale indicates whether police work is adversely affected by first aid delivery. Subscale B is "EMT Work," and indicates whether EMTs experience more work because of the police first aid program. Subscale C is "Criticism" and indicates if the DKPD gains prestige through the first aid program. Subscale E is "Conflict" and indicates if the first aid program creates conflict between EMTs and police. Subscale F is "Police First Aid Effectiveness," and indicates if the program is seen as successful in providing emergency care.

Section 5 is a generalized indicator of attitudes of the DKPD officers toward police first aid delivery. This section indicates whether or not the officer views the program as an aspect of his work consistent with his other police duties. Attitudes toward integrated administration of first aid by police and EMTs are expressed in one scale and the perceived ability to adopt humanitarian behavior under adverse circumstances is measured in the second.

Section 6 is the Job Facet--Superior Recognition of First Aid Work Index. This index measures perceived superior response to patrolman efforts in administration of first aid. This section was designed using ideas drawn both from Smith, et al., 1969, and from Porter and Lawler, 1968.

The Job Satisfaction Survey of Section 7 uses a number of general statements about working conditions, internal interactions, usage of individual skills, and transmission of information in order to estimate an individual's degree of satisfaction with his work

environment as a whole. Because this index is an aggregate measure, it may disguise feelings and attitudes about specific aspects of the job toward which the individual has a more or less positive attitude than is indicated by the total Section 7 score. As originally devised, this instrument was constructed with three response scales. The scales were (1) "does have" or "is not"--a measure of the amount of a quality or current agreement with the statement; (2) "should have"--a measure of the amount of a quality or agreement with the statement that the respondent believes is ideal for him or from his perspective; and (3) "importance"--a measure of the extent to which the statement has relevance to the respondent. Wanous and Lawler (1972) reviewed the literature on the use of each of these scales as a means of determining job satisfaction. In a study designed to determine which measure best correlates single item responses with the total job satisfaction scores, they found that correlations with a single item measuring overall satisfaction and "is now" scores and correlation of the mean of job facet satisfaction measures with "is now" were the highest and second highest correlations studied. The authors also note that "the data suggest that it is possible to measure satisfaction validly with different job facets" Wanous and Lawler, 1972).

Likert Scales

The questionnaire response frames are almost all in the form of Likert scales. A Likert scale provides a continuum along which responses to a question may be placed. The two ends of the continuum are usually bipolar and are designated by opposing descriptions as "agree-disagree." Such a scale has at least ordinal characteristics; that is, a response placed along the scale has a definable psychological distance from either endpoint. That such a scale is also interval in nature has been argued on theoretical grounds, but at least an ordinal property can be safely assumed.

Theoretically, such scales could be continuously divisible with respondents being allowed to select any point along the scale. In practice a limited number of integers are provided as "stations" between the bipolar pair which can be selected. Usually there is a range from 5 to 15 intervals in the scale. If there is an odd number of intervals on the scale, the respondent can choose to respond at the

"neutral" point (of course, not all scales have a neutral point--it depends upon the paired adjectives used). If there is an even number of intervals the respondent is forced to make a choice toward one end of the scale or the other. Forced choice formats have not been used in this questionnaire, thereby allowing the respondents a neutral (or perhaps a "don't know") response on most items. The scale itself allows measurement of the intensity of feelings about particular response items. We are able to measure the degree of agreement with one pole of the item. And, with an ordinal scale (perhaps even interval), we have a measure that can be summed across a set of related items. It is the summated Likert scale property that is of ultimate benefit in the development of meaningful measures of response to the items developed in the questionnaire. The summated Likert score for a section is a useful measure of the attitude/feelings/beliefs of an individual toward the property measured in the questionnaire. By comparing summated Likert scores between individuals for various aspects of the total questionnaire and by controlling for independent variables, we may be able to define groups of individuals who have specific kinds of attitude sets.

Pretest of the Questionnaire

In the process of developing and refining each of the questionnaires, project staff members continued to contribute both potential questions and suggestions for areas in which further questions should be developed. After all staff suggestions had been developed, duplicated items were removed and a preliminary set of items was assembled. This initial set of items was then pretested on several project staff members to determine the coherency of the instructions and to estimate the length of time it would take to administer the questionnaire. A number of questions were redrafted on the basis of ambiguities picked up in this initial pretest.

The pretest questionnaire was administered in early September 1976 to a group of 26 senior level police officers. This pretest was designed to accomplish two things. The first was to determine whether or not any procedural and/or administrative "bugs" existed in the test package. The second was to determine whether or not all questions developed for the instrument did in fact belong with the instrument; that is, to determine if the various sections of the instrument actually measured

the same concepts within each section.

Procedurally, it was noted that there was some reluctance to give the individual's badge number as requested. Since this information was needed later to correlate officer attitudes with individual performance in the delivery of emergency first aid care, it was necessary to consistently obtain this information at the time of questionnaire administration. In order to encourage the officer to include his badge number, the instructions were modified to include a cut-off section at the bottom of the first page. This section contained a questionnaire control number and requested that the respondent fill in his name and badge number. This section was designed to be removed from the form upon receipt and formed the single source from which an individual could be associated with a questionnaire.

In order to facilitate coding, several changes were made in the body of the instrument, primarily in Section 1 dealing with biographical information. For example, birthplace was amended to a series of areas that vary in their proximity to DeKalb County, in order to get an index of area of birth which would reflect a measure of similarity of background and attitudes. Minor changes were made in the format of the medical associates questions (#10 and #11) in order to allow easy category coding. Beyond these revisions several questions in the training program section (Section 3) were amended to allow selection of 1 of 13 categories of first aid events receiving mention in the pretest.

Actual analysis of the results of the pretest proceeded in several ways. A list of all comments made at the conclusion of each section was made. These comments had very little to say about actual questionnaire content and dealt most often with such things as needs for additional training. These comments provided anecdotal support to such anticipated outcomes as internal demand for a continuing education program or efforts to reduce friction between fire department EMTs and police officers.

Pearson Correlation Coefficients (PCC) are zero-order correlations which do not attempt to control for the influence of other variables. The PCC "r" measures the strength of the relationship between two interval-level variables and indicates the goodness of fit of a linear regression line to the data. When the PCC "r" is

squared, it indicates the proportion of variance explained in one variable by the second variable.

Each section was examined to determine to what extent each question in each section correlated with the raw summated Likert score for that section. A total was generated of Likert scores for each section and the PCC "r" for each question with its relevant total was generated. In this test, low "r's" (i.e., below 0.30) were calculated in Section 3 for items 17, 19, 25, and 26; in Section 4 for items 48, 49, 54, 58, 59, 60, 61, 64, 65, 67, and 68; in Section 5 for items 101, 102, 103, 108, 109, 113, 114, 117, 120, and 123; and Section 7 for item 145. This was taken as an indication that these items should be checked again against the response total for the total population for correlation.

It was recognized that the pretest sample was not a random sampling of the population to be measured. It was in fact heavily biased toward administrative and supervisory personnel whereas the population being studied was primarily composed of line officers or patrolmen. Because of the biased nature of the sample and because of the high general consistency and reasonableness of responses to the pretest questionnaire, it was decided to keep the instrument unchanged from the pretest for administration to the research population. In this manner, comparison would be facilitated between line and administrative personnel in the event there was need for comparison along this dimension.

Questionnaire Administration

Questionnaires were initially collected from 209 of 236 eligible police officers on the DKPD. Of these, 208 were completely filled out. The officers responding included 183 line officers, 2 corporals, 12 sergeants, 8 lieutenants, 1 captain, and 2 majors. Of those not responding, a number had quit the force, some had been promoted or transferred, and a few were rookies in or just out of police academy. About 10 eligible officers failed to respond. A response of 88.5 percent for the total officers solicited, or 90.8 percent for the eligible officers, was reasonable though not as high as was desired. Given that follow-up requests were made through the DKPD and that participation was voluntary, the response rate seemed satisfactory. The instrument

was quite imposing in appearance being 16 pages long. Even though it only required 20 to 30 minutes to complete, some officers may have felt somewhat threatened by its apparent size.

After the analysis of the questionnaire was complete, several other questionnaires were returned, thus bringing the total to 221 or 93.6 percent. These new questionnaires were also used in writing the behavioral variables onto the individual case files and in subsequent performance analysis.

Approach to Analysis of the Questionnaire

The responses to each section of the questionnaire are first examined by Factor Analysis. This technique provides two kinds of information; first, it locates the relationships in the data as they exist among variables, and, secondly, it reduces the variables that cluster together into a smaller set of factors with factor scores. It is the clusters or factors that explain the variation in the data. This technique is used to determine if the dimensions which were assumed to be measured by the various instruments are in fact those that were measured by the items. The factor scores are also used as more reliable measures of response than the summated Likert scores in the development of the models of Chapter VI.

A second means of determining whether inclusion of the item in the test instrument was valid lay in the calculation of Pearson Correlation Coefficients (PCC) between individual items and the total item scores (summated Likert scores) for each section of the questionnaire.

The individual scores for each item in a section have been added together to produce a summary measure, the summated Likert score. The range for this score varies from section to section with the number of items. Therefore, as a means of showing the distribution of scores from the summated Likert score, analysis of each section will include both the potential and actual minimum and maximum summated Likert scores along with the population mean and standard deviation.

In order to determine whether the bio data variables (most of which are ordinal) influence or are associated with the summated Likert scores for each section (which are interval), cross-tabulations

are run between the two sets of variables treating bio data as the independent variable and section scores as the dependent variable. From these cross-tabulations several statistics can be computed. The most useful is the chi-square test of statistical significance. Chi-square is a way of determining whether or not a systematic relationship exists between two variables, but it is not a measure of the strength of the association. Eta is a measure of the strength of the relationship between a nominal (or ordinal) independent variable and an interval (or ratio) dependent variable. It is a measure of the dissimilarity of the means of the dependent variable within the categories of the independent variable (Nie, p. 230). As the differences in means become greater, eta rises toward its maximum value of 1. If eta is squared it can be interpreted as the proportion of variance in the dependent variable explained by the independent variable. (Eta-squared is also called the correlation ratio).

The Spearman Correlation Coefficient is a rank-order correlation coefficient which requires only an ordinal measure scale. Spearman Correlation Coefficients were calculated for all bio data variables and section scores. Using the correlations that were significant at a 0.05 level or greater, a check was made to see if the means of the scores between bio data response groups within a given variable were different. The "t-test" was used to determine whether response groups did in fact differ from each other. The t-test is a measure of the likelihood that the sample means of two populations differ from each other.

In addition to the statistics described, some portions of the data are best understood by the use of percentages or proportions. Where nominal categories must be selected by respondents, percents are a clear way of describing large quantities of data.

Results of the Questionnaire Analysis

The following seven sections describe the results of the questionnaire analysis. The full questionnaire is included in Appendix C.

Section 1--Biographical Description of the DKPD

Since there was no previous knowledge of the specific personal characteristics that might shape reaction to the first aid program, a set of 11 biographical characters that seemd to be important were

selected. These items included age, sex, education, place of birth, rank, several measures of years of service, time since last first aid course, other medical training, and family/associates in medical professions.

The DKPD is a young force; 58 percent of the officers are under 30 and 80 percent under 35. Only 1 percent are over age 49. The physical activity and danger of the job make it a young man's profession. The age distribution is shown in Table 18.

Table 18

AGE DISTRIBUTION OF POLICE OFFICERS

Age in Years	Number	Percentage
20-24	28	13.4
25-29	93	44.5
30-34	47	22.5
35-39	16	7.7
40-49	23	11.0
50-59	2	1.0
Total	209	100.0

As would be expected, the force is predominantly male. Only 4.8 percent of the force is female. (Three percent failed to specify their sex.)

Education seems to have been an important criterion in selecting the DKPD officers or it has had strong ongoing support once a person has become an officer. While 7 percent of respondents failed to specify their education, it was found that only 2 percent failed to complete high school. Twenty-two percent have completed high school or have an equivalency certificate of some sort. Forty percent have taken courses beyond high school in either a business or technical school or in college but have not completed either an associate's or a bachelor's degree. Eight percent have obtained an associate's degree and 18 percent have a bachelor's degree. A few (3 percent) have had course work or graduate work beyond the bachelor's degree or have a graduate degree or a law degree. In summary, 24 percent have a high school or

less education, 48 percent have education beyond high school but short of a bachelor's degree, and 21 percent have a college degree of some type. The DKPD is staffed with a well educated group of men whose education is well above that for the general population. The educational level is shown in Table 19.

Table 19

EDUCATIONAL LEVEL OF POLICE OFFICERS

Education	Percentage of Officers
Some High School	1.9
High School	21.5
Business/Technical School	5.7
Some College	34.9
Associate's Degree	7.7
Bachelor's Degree	17.7
Beyond Bachelor's Degree	3.3
No response	7.2

The members of the DKPD are predominantly local people. About 42 percent of the force was born in the seven county greater Atlanta area and about 12 percent of the force was born in DeKalb County. The majority of officers were born in the southeastern states. Only 17 percent were born outside of the South. The state of Georgia, including the greater Atlanta counties, is the birthplace of 59 percent of the officers. These percentages are shown in Table 20.

Table 20

PLACE OF BIRTH OF POLICE OFFICERS

Place of Birth	Percentage of Officers
DeKalb	12.0
Atlanta Area	29.2
Georgia (other)	18.2
Southeast	23.5
Other	17.2

Line officers account for approximately 88 percent of the respondents. Corporals and sergeants account for approximately 7 percent of respondents; and the balance, 6 percent, is composed of officers at the rank of lieutenant or above.

The number of years spent in current rank describes a bimodal curve over the raw intervals. Apparently it is unusual for an officer to remain the same rank for over 10 years. Only 10 percent of the force has more than 10 years experience within the same rank. The majority of the force either moves to a different rank or out of the force within 10 years and 70 percent do so within 5 years.

Most men (about 60 percent) have been with the force less time than they have been in the rank they hold. As the fifth year is reached, commitment to the DKPD grows and men tend to have reamined with the force slightly longer than they have been in their present rank.

Twenty-seven percent of the officers have had between 5 and 10 years experience with various police forces. Fifty-five percent have had under 5 years experience as a police officer and 18 percent have had more than 10 years experience with police departments.

First aid training is recent for most officers. Ninety-one percent have had training within the last four years. Only 2 percent have gone more than 5 years without first aid training.

First aid training is of considerable importance to most patrolmen. Seventy-one percent of patrolmen have had some exposure to first aid other than that received in police academy. Five percent have been Armed Forces medics, 46 percent have taken a first aid course of some type, 10 percent have done individual study, and 10 percent have obtained some other additional first aid knowledge. Twenty-nine percent of patrolmen have had no other training than that offered in police academy.

Of those that have obtained additional first aid knowledge and have dated their activity (38 percent of the DKPD), 49 percent have done so within the last 5 years and 85 percent within the last 10 years.

Thirty-five percent of respondents know a relative or friend who is associated with the delivery of medical care in some fashion. Of these, 16 percent are married to a medical person, 15 percent are related by marriage, 39 percent are related consanguinally, and 29 percent have friends who are in medical professions. Fifty-eight

percent of medical persons known are RNs, 6 percent are EMTs, 12 percent are MDs, and 24 percent have some other medical affiliation.

Section 2--Satisfaction with Delivery of First Aid Care

This section is one of three which deal with aspects of job satisfaction among the DKPD. Here the specific job facet of satisfaction with the delivery and administration of first aid care is examined. Pearson Correlation Coefficients calculated for the pairs of items and section total score (summated Likert score) show that all but 1 of the 13 items in this section have correlations significant at the 0.001 level or better. The one item not shown by the correlation coefficient to be significantly related asks how frequently others continue work started by the officer. Since EMTs routinely take over the administration of first aid from police officers we would expect a response weighted toward "very often." In fact, the mean is 3.7 or a "moderate" amount, but the standard deviation is 1.9, indicating a wide range of responses to this item.

The minimum and maximum possible summated Likert scores for this section were 13 and 91. The actual range was 15 to 77 with an individual question mean of 4.1 and a standard deviation of 0.79.

Factor analysis of Section 2 suggests that this measure is not unidimensional, but rather is composed of three factors. The first factor is composed of items 3, 5, 6, 10, 12, and 13, and may be called "challenge/reward." The second factor consists of items 1 and 2 and is best labeled "feedback." The third factor consists mainly of item 7 and is best labeled "satisfaction." "Challenge/reward" accounts for 68.5 percent of the total variance, "feedback" accounts for 21 percent, and "satisfaction," 10.5 percent. Challenge/reward so clearly dominates the response set that though the section is not unidimensional as postulated prior to administration, it may be treated practically as a unidimensional measure of challenge/reward and, considering rewards and satisfaction are often specified in terms of feedback, the coherency of the total section seems clear.

As the number of years spent in police work increases, there is a general tendency for total scores on T2 to drop. During the first year of duty the mean score is 57.3 points. This drops, with fluctuations, to 50.4 with over 15 years of duty (x^2=74.2, d.f.=54, sig.=0.035, eta=0.25).

The Section 2 score seems to be associated with whether or not a person has close associates who are in medical fields. Those who have such friends tend to score several points more than do those who have no such friends (54.8 vs. 51.6) (x^2=27.3, d.f.=as, sig.=0.007). It might also be noted that those who have acquaintanceship with an EMT score 55.2 on Section 2, 1 point higher than those having an acquaintance with other medical professionals.

Looking at responses to individual questions, it is seen that DKPD officers feel they receive little feedback about their performance either from fellow officers (item 1) or from EMTs (item 2). Little opportunity is seen for performing a variety of first aid procedures (item 8), but whether this is viewed as a source of irritation or as an acceptable limitation is not known. Administration of first aid is seen as a prestigious part of the officer's duties (item 3) and one which is a source of continued gratification on the job (items 5 and 6). As previously mentioned, there is considerable disagreement about the extent to which others continue first aid procedures started by the officer (item 4). Officers tend to believe that they can determine if they are doing an acceptable job of delivering first aid (item 7). The inclusion of first aid duties is not seen as hindering other police duties (item 9). Officers tend to have a strong feeling of accomplishment arising from the delivery of first aid (item 10). There is doubt as to whether the public believes this is the most useful function of the police (item 11). While generally positive feelings are expressed about the delivery of first aid care, officers indicate only a moderate liking for the administration of first aid (item 12). The first aid training program is seen as having increased the officer's confidence in dealing with accident situations (item 13). This finding was expected, since this is one of the functions of such training.

The t-tests show that those whose education includes work beyond the bachelor's degree tend to have higher Section 2 scores than do those who have lesser amounts of college education or who have only a high school education. These differences are significant at the 0.05 level. Those with a business or technical school education tend to score higher than any of the college educated groups except for those who have taken work beyond the bachelor's level.

Section 3--Perception and Evaluation of First Aid Training

This is the first of three sections in which the attitudes and perceptions of the police officer toward his first aid role are explored. Here rankings of the usefulness of various instructional components is explored and attitudes toward aspects of the first aid training program are examined. Pearson Correlation Coefficients calculated for the pairs of items and the section total score show that all seven attitudinal items correlate with the summated Likert score at a level of significance better than 0.001 and with an r greater than 0.3.

The minimum and maximum possible summated Likert scores for this section were 7 and 49. The actual range was 11 to 42 with an individual question mean of 5.3 and a standard deviation of 0.87. The overall score will be called the Section 3 score.

Factor analysis of Section 3 identifies three factors of which the first two account for 87.4 percent of the variance. Factor one consists of items 21, 24, and 25, and may be labeled "instructor abilities." The second factor consists of items 18 and 20 and measures "training usefulness." Factor one accounts for 57.1 percent of total variance and factor two for 30.3 percent.

The number of years since the last first aid course is related to the Section 3 score. Scores seem to rise slightly through the first two years (33.5) and then drop to a low by the fourth year (27.4) after which they begin rising again (33.5). (x^2=104.1, d.f.=48, sig.=0.0001, eta=.43)

Responses to individual questions show a generally strong feeling that first aid training has been useful (item 18). There is some mild feeling that some of the training was busywork (item 19), and that a moderate amount of the training has been useful (item 20). Most officers generally agree that needed procedures were actually covered in the training (item 21). The instructors were very competent (item 24), and they were quite interested in individual performance (item 25).

The t-tests show the same difference between those having some work beyond the bachelor's degree and others as were seen in Section 2. Those with education beyond the bachelor's degree tend to rate the first aid instruction more highly than do other groups.

It is seen that those who participated in the first aid training program between three and four years ago tend to see the quality of the first aid training program as having been considerably less useful and effective than do the more recent first aid program participants. There is also a tendency for those having 2-3 years police experience to rate the first aid program very high, and for those having more than 15 years experience to rate the program very low.

In Section 3 a great deal of attention in the questionnaire was given to opinions about the usefulness of various aspects of the first aid program. It is noteworthy that when asked if the first aid training program should be continued, 97 percent of the officers responded "yes." Thus, only 3 percent of the respondents (6 persons) felt that the program should be discontinued.

When asked the items in which they would like to receive more training, 4 items received 65 percent of the responses. Twenty-four percent wanted more training for heart attack situations, 19 percent in drug overdose identification, 11 percent in rescue/extrication techniques, and 10 percent in cardiopulmonary resuscitation (CPR).

It is interesting to compare the perceived need for training with the valuation given training in various contexts. When asked, "What was the best part of first aid training?", 77 percent of the responses fell in 4 categories: CPR--35 percent, artificial respiration--15 percent, bleeding control--14 percent, and heart attack--12 percent.

When asked, "What part of first aid training have you used most?", 80 percent were in 4 categories: bleeding control--30 percent, bandaging--24 percent, heart attack cases--15 percent, and CPR--11 percent.

When asked what the instructors emphasized most, 80 percent of the responses fell in these 4 categories: CPR--40 percent, artificial respiration--25 percent, bleeding control--11 percent, and heart attack--10 percent.

When asked what skill they would like to review, 70 percent of the responses fell in these categories: heart attack--24 percent, CPR--19 percent, drug overdose symptoms--17 percent, rescue/extrication--10 percent.

Note that the questions, "Should have more training in," and "Most want to review," receive almost identical percentage responses. These two questions are merely alternative statements of each other. The close percentage responses in each category serves to verify that

respondents were consistent in their responses to this section of the questionnaire.

Items (26-35) which asked, "How much more time should be spent on . . ." in training on various first aid tasks, were consistently given mean responses of 4.0 or better. This probably does not truly indicate that the DKPD officers believe more training should be given in all of the named areas. Rather, it probably reflects an assumption carried over from previous questions that "4.0" represents a neutral midpoint or "don't know" response. Thus, it is likely that only those items where the mean response is $\bar{x} \leq 3$ or $\bar{x} \geq 5$ can be accurately taken to reflect a belief that less or more training time ought to be spent upon the item. No item received less than "4.0." Presumably then, those items where $\bar{x} \geq 5$ reflect a desire to see expanded training in those areas. CPR, drug overdose symptoms, and artificial respiration are the 3 items in which additional training time is unequivocably seen as being needed. In addition, there is a tendency to see periodic reviews of first aid skills as being useful.

Section 4--Beliefs About the Outcome of the Police First Aid Program

This section (the second of three "attitude" sections) was designed to measure beliefs about the police delivery of first aid. Those measured are attitudes about the amount of additional work created for police officers and for EMTs, the additional risk of community criticism, the possibility of conflict between police and EMTs, increasing prestige of the DKPD, and effectiveness of the first aid care. Pearson Correlation Coefficients calculated between the items and the total section score show all but 1 item significantly correlated at the 0.001 level. This item (51) deals with the possibility of creating less work for EMTs and does correlate highly with other items dealing with perceptions of others' attitudes and was, therefore, retained.

The minimum and maximum possible summated Likert scores for this section were 21 and 147. The actual range was 69 to 142 with a question mean of 5.1 and a standard deviation of 0.72. Factor analysis of these data yields 6 factors of which 4 have high factor loadings in the approximate manner in which the item sets were initially constructed. This is strong evidence that the items largely

measure the behaviors which they were devised to sample. Factor 1 consists of items 59, 60, and 61, and may be termed "prestige." This factor accounts for 39.2 percent of variance. Factor 2 accounts for 25.3 percent of variance and consists of items 62, 63, and 64. This factor is "EMT conflict." Factor 3 consists of items 48 and 49, accounts for 14.9 percent of variance, and may be termed "police work." Factor 4 consists of 53, 54, and 57, may be termed "criticism of police," and accounts for 8.8 percent of the variance. Factor 5 consists of 55 and 56, is called "medical attitudes," and accounts for 6.5 percent of variance. Factor 6 consists of 66 and 67, is called "effectiveness," and accounts for 5.3 percent of variance.

Age is significantly related to the total Section 4 score (x^2=73.7, d.f.=35, sig.=0.0001, eta=.19). Scores rise from 104.0 in the 20-24 bracket to 109.6 in the 30-39 bracket. The Section 4 score drops to 103.4 between 50 and 59. For two officers over age 60, the score shoots up to an astounding 123.5.

Years spent in current rank is significantly related to the Section 4 score (x^2=76.7, d.f.=56, sig.=0.035, eta=.21). Those in their rank less than six months score the lowest of all groups (99). This rises to the highest score in the next six months (113). The score then drops in a fluctuating fashion for the next four years of service, and during the five to ten year service period rises to the second highest point (111), then drops thereafter to the second lowest point.

Section 4 score is highly associated with the type of other medical training a person has received (x^2=55.3, d.f.=35, sig.=0.016, eta=.22). Surprisingly, those who received army medic training score about the same (105.9) as those who claim no further medical training (105.2). Those who have taken a first aid course score 109.9, and those who have studied on their own have the highest scores on this section (111.8). Those who claim some other form of additional training score lowest of all groups (102.2).

The possession of medical associates is significantly associated with Section 4 scores (x^2=26.4, d.f.=14, sig.-0.023, eta=.12). Those who do have medical associates score a few points higher (110.1) than do those who have no medical associates (106.5). The relationship of the associate also is significantly related to the Section 4 score

(x^2=39.1, d.f.=28, sig.=0.079, eta=.20). Those having a relative in their own family tend to score lower (105.7) than someone whose spouse (110.4) or whose spouse's family (113.0) has a medical professional. Those having a friend who is a medical associate score highest of all (114.2).

A set of four questions, items 49, 62, 63, and 64, which deal with potential conflict between EMTs and police shows no strong potential conflict between the two. The police and EMTs are strongly perceived as working well together (score reversal, $\bar{x}$ = 5.9, s = 1.6).

Police administration of first aid is not seen as reducing community respect for EMTs (score reversal, $\bar{x}$ = 5.9, s = 1.6). And transfer of care from police to EMTs is seen as being especially smooth (score reversal, $\bar{x}$ = 6.0, s = 1.5). The mean for the set of four items is 5.8 with a standard deviation of 1.2 indicating that not only is conflict between EMTs and police officers seen as unlikely, but that also there is a high degree of uniformity between officers on this point.

One possible outcome tested was an increase in the amount of work expected of the police force. Items 48 and 50 test this. Officers do not agree with the proposition that first aid duties create too much work at accident scenes (score reversal, $\bar{x}$ = 5.1, s = 1.7) or with the proposition that they do not have the time needed for first aid skills review (score reversal, $\bar{x}$ = 5.1, s = 1.8). The mean for this set is 5.1, s = 1.4, indicating that there is a weak positive agreement that first aid duties do not create extra work for the police.

The mirror image of whether the police have additional work is the question of whether the EMTs have additional work. Because the EMTs are more highly trained in first aid than the police officers, there is a chance that, if the DKPD viewed themselves as ill-equipped to administer first aid, the officers could see their first aid work as having to be redone by the EMT and consequently as causing more work for the EMT. The officers strongly disagreed with this notion (score reversal, $\bar{x}$ = 5.9, s = 1.5). There is somewhat less confidence that the EMTs do not have to correct police first aid errors, but there is agreement that this is not likely (score reversal, $\bar{x}$ = 5.4, s = 1.5).

Four items deal with the possible presence of a belief that the administration fo first aid duties is seen as increasing the prestige of

the police. Here, the case is weak. There is some agreement on two items that the police derive increased prestige. When asked if the community thinks the police give good first aid care, there was a tendency to believe this ($\bar{x}$ = 5.000, s = 1.3), and when asked if public knowledge of the police first aid program would improve the police-community relationship, there was again some belief that it might ($\bar{x}$ = 5.2, s = 1.6). But additional respect is not strongly seen as deriving from the first aid program ($\bar{x}$ = 4.6, s = 1.7), nor is the program seen as giving strong reason for higher wages ($\bar{x}$ = 4.2, s = 2.0), Thous there is some disagreement on this latter point. The mean for the set is 4.8 with a standard deviation of 1.2, indicating that, while positive, the force does not strongly perceive the first aid program as materially affecting their prestige.

This section also looks at self-perception about the effectiveness of the care delivered by the police. There is strong agreement that police participation in the first aid system has resulted in quicker emergency medical care ($\bar{x}$ = 5.7, s = 1.6) and in better emergency medical care ($\bar{x}$ = 5.4, s = 1.7). But the proposition that fewer traffic deaths have resulted from the first aid program is seen as questionable ($\bar{x}$ = 4.6, s = 1.7), and there is ambivalence about the actual need for police first aid attention since EMTs are usually on the scene of an emergency in a few minutes (score reversal, $\bar{x}$ = 4.6, s = 2.1). The mean for the set is 5.0 with standard deviation of 1.1, indicating general agreement that the first aid program is effective.

The t-tests do not discriminate between any of the groups in the biodata variables whose presence was suggested by either canonical correlation or Spearman correlations, at a 0.05 level of significance or better.

Section 5--Acceptance of First Aid Duties

This section (the third of three "attitude" sections) deals with the degree to which police officers accept and integrate first aid duties as part of their normal work assignments. It is a measure of the degree to which first aid duty is seen as a normal component of the officer role and of the acceptance of such duty. Of the 25 items in this section, the Pearson Correlation Coefficients between items and summated Likert scores were significant at the 0.001 level for 20 items,

at the 0.005 level for 3 items, and at the 0.05 level for 1 item. For item 102, the level of significance was 0.606 and the coefficient was 0.0359, thus suggesting no likely relationship.

The minimum and maximum possible summated Likert scores for this section were 25 and 175. The actual range was 76 to 153 with a question mean of 4.8 and a standard deviation of 0.61.

Factor analysis of Section 5 reveals four factors which account for 80.8 percent of the total variance. These factors are "discomfort in giving first aid" (40.0 percent of variance, items 115, 116, and 125), "humanitarian responses" (16.1 percent of variance, items 117 and 122), "stop first aid program" (14.9 percent of variance, items 104 and 105), and "good publicity" (9.8 percent of variance, items 107, 113, and 124).

Age is highly associated with the Section 5 score (x^2=73.7, d.f.=35, sig.=.0001, eta=.19). Scores rise from 117.0 at age 20-24 to 121.6 at age 35-39, then drop to the lowest score (109.9) at age 50-59 and rise again to 115.50 over age 60.

The number of years since first aid training is highly associated with the Section 5 score (x^2=80.3, d.f.=56, sig.=.018, eta=.22). Scores rise from 118.4 at 1 year, to 122.7 at 3 years, then drop to 115.4 at 5 years, and climb again to 125.0 at over 15 years.

Whether or not a person has medical associates is significantly associated with the Section 5 score (x^2=26.4, d.f.=14, sig.=0.023, eta=.12). Those not having medical associates tend to score about 1 point more than those who do (119.4 vs. 118.6). The profession of the medical associate is also highly correlated with the Section 5 score (x^2=41.2, d.f.=28, sig.=.051, eta=.19). Those having an associate who is an EMT score 136.8, about 15 points more than for RNs, MDs, or others.

As seen in a previous section, there was a feeling that EMTs were so prompt as to render questionable the need to start first aid. It is seen here that when asked if the first qualified person to give first aid at an emergency should proceed, there is a strong positive response (item 101). There was a tendency to feel that the police should be relieved of first aid duties (104). Inclusion of first aid duties was not seen as being onerous (item 105), and there was a strong disagreement with the proposition that only EMTs should deliver emergency care (item 106). There was a tendency to feel that police delivery of first aid care results in better medical care for emergency victims (107).

There is strong agreement that the idea of police rendering first aid is a good one (108). There is a "don't know" or ambivalent response to the suggestion that first aid duties interfere with other police duties (110). Officers apparently feel confident in their abilities since there is general agreement that the prior arrival of an EMT does not result in a feeling of relief when arriving at an emergency (111). First aid training is strongly felt to be a real personal asset which is not limited to the job (114). The suggestion that giving first aid can create an uneasy feeling strikes no responsive cord (115) and neither do officers see themselves as avoiding giving first aid (116). Officers do not either enjoy or dislike giving first aid (120). They do report beginning first aid as soon as they arrive at an emergency scene (121).

Two questions deal with rendering first aid to an assailant (117 and 122). Officers generally do not know if it would be difficult to give aid to an assailant or a person whom they had shot. The mean is about 4 for these two items with a standard deviation of 2. On such an emotionally loaded topic, it is not surprising that no clear response pattern emerges.

The administration of first aid by police and EMTs is also dealt with in this section. Officers are not sure if their abilities to give first aid can be used more than they currently are (102), but there is decidedly strong agreement with the proposition that police cars ought to be dispatched at the same time as ambulances and pumpers (103). Some feeling exists that EMTs do ask for assistance from police (109). Even though police do give first aid, they are not sure if more aid than that given by EMTs is really needed (112). There is a weak tendency to see the DKPD as receiving good publicity from first aid efforts (113). There is no preference to wait for the EMT to give first aid (118) and there is a decided feeling that when injuries are severe it is best to begin treatment without waiting for the EMT. Weak community support for the DKPD first aid program is felt (124).

The t-tests show that, when considering years spent in police work, there is a significant difference in scores between those having more than 15 years of service and those having either 5 to 15, 2 to 3, or 6 months to 1 year of duty in police work. The mean score for those having more than 15 years of service is considerably lower than the other groups.

Section 6--Perception of Superior Officer Attitudes

This is the second of three sections dealing with job satisfaction. The patrolman's perceptions of superior officer attitudes toward the delivery of first aid care by the police are explored here. The Pearson Correlation Coefficients between items and summated Likert scores are all significant at the 0.001 level.

The minimum and maximum possible summated Likert scores for this section were 5 and 35. The range was 5 to 31 with a question mean of 3.6 and a standard deviation of 0.95.

In the factor analysis, two factors were extracted. The first factor, "superior concern for first aid performance," consisted of items 129, 130, and 132 and accounted for 83.8 percent of the variance.

There is a clear feeling that superiors provide very little feedback about performance of first aid duties (129) and that they have only a moderate regard for first aid ability (130). But the first aid program is clearly seen as important to the objectives of the DKPD (131). The administrative staff is seen as having only a moderate knowledge about problems of administering first aid in the field (132), but they are not seen as regarding first aid as an additional burden (133). It is striking that the administrative staff is not seen as having a feeling decidedly for or against the first aid program.

The t-tests show significant differences between groups having less than one year in their current rank and all others on their mean Section 6 score. Officers with less than one year in current rank are significantly higher in Section 6 scores than are other groups and are especially different from those having two to four years in their current rank. Those with two to four years in current rank have the lowest mean Section 6 scores of all groups.

Age also produces significant differences. There is a progressive improvement in Section 6 score from the group of officers under 34 to the group from 35 to 39 and with the highest scores in the group from 50 to 59. Two clearly defined groups by age are those 35-39 and those 50-59.

In the number of years since first aid training category, it is seen that those who never participated in the first aid training program score higher than any other group on Section 6. This perhaps indicates that with no formal knowledge any positive reinforcement on an area in

which individual limits are below the group norm will be differentially remembered.

Section 7--General Job Satisfaction

Section 7 is a job-satisfaction index specifically adapted for the DKPD situation. There are 20 items in this set for which all the Pearson Correlation Coefficients are significant at the 0.001 level.

The minimum and maximum possible Likert scores could run from 20 to 140. The actual range was 28 to 137 with a question mean of 5.0 and a standard deviation of 1.0.

Education is highly associated with the score on Section 7 (x^2=124.7, d.f.=77, sig.=.0003, eta=.34). The score rises from 106.8 with a less than high school education, to 108.2 with attendance at a business/technical school, and begins dropping as formal college education increases. Those having work beyond the bachelor's degree score only 87.0 on this section.

Two factors in this section account for 87.4 percent of the variance. The first factor is "training opportunity." This accounts for 71.5 percent of variance and consists of items 149, 150, 151, and 152. The second factor, "self-actualization," accounts for 15.9 percent of variance, and consists of items 137, 139, 140, 143, 144, and 155.

All but two items in this set fall in the range from "don't know" to "very much." The two items are the amount of DKPD sponsored training (150) and the amount of pay for the work (156). The mean total is 100.5 (out of a maximum of 140), suggesting an average response of 5 on each item. This is a strong indicator that the DKPD officers are generally satisfied with their jobs. Some aspects are seen as especially pleasing, however. There is a strong sense of being part of a team (137), of belonging to a department well regarded by other forces (138), of making a contribution to the total force (139), of having good working conditions (140), of having good equipment (141), of having a great deal of teamwork (142), and of being satisfied with the work. Beyond this there are lesser but still positive attitudes to the prestige outside of the DKPD (143), and to freedom to make decisions (148). There is a feeling that there is a great deal of work to do (145).

The t-tests show two clearly defined groups in Section 7 in the variable "years in rank." Those with less than six months of service score higher than any other group while those with two to three years

service score lower than any other group.

The DKPD Officer Profile

A representative DKPD police officer can be summarized as a young male between the ages of 25 and 29. He has completed high school and has taken some college course work (most likely job-related courses at a local two year college). He is a long-time resident of the area, having been born within the seven county metropolitan Atlanta area. He has been with the DKPD for about four years, and he may have spent one year working in another police department. He took a first aid course after having joined the DKPD. Typically, none of his friends or relatives are trained in any of the medical fields. However, if he does know a medically trained person, it would be his wife, who would be a registered nurse.

On a 7-point scale, the "average" officer scored 4.1 on Section 2--Satisfaction with Delivering and Administering First Aid; i.e., he derives a moderate amount of satisfaction from administering first aid. On Section 3--Perception of the DKPD First Aid Training Program, he scored a 5.3, indicating that he felt the training program was a good one. He scored 5.1 on Section 4, indicating that he believes the first aid program has positive benefits for him personally and for the police department. Acceptance of first aid delivery as a normal part of police work (Section 5) was fairly high--4.8--indicating that first aid delivery is well integrated as a facet of police duties. But the attitudes of superior officers toward his delivery of first aid (Section 6) are seen as being only slightly supportive (a score of 3.6 was made, not even to the scale midpoint). However, he sees the job which he has as being a good one with a reasonable amount of satisfaction for himself and achieves an average of 5.0 on Section 7.

CHAPTER V

DATA COLLECTION AND MONITORING

This chapter describes three elements of the data collection process. The first section describes the development of the First Aid Form, which was the primary collection instrument for the police first aid activity. After the First Aid Form is described, the monitoring activities of the staff during data collection are discussed. Finally, the process associated with development of the computerized data set is described in detail.

Development of the First Aid Form

Prior to this first aid research study, the DeKalb County Police Department had no records of first aid incidents. Some information associated with patient injuries was noted in the routine traffic accident reports which the police department filed. However, this information is almost impossible to retrieve and no information was given for strictly medical emergency encounters. One of the first tasks in the project was the development of the DKPD First Aid Form. This form was the primary data collection form used throughout the project and was developed by the staff to accomplish three objectives: (1) to collect information to be used in assessing police first aid performance, (2) to collect information to assess non-medical police performance at the scene of an emergency, and (3) to collect relevant response time data to be used in developing accurate response time statistics. The DKPD First Aid Form is shown in Figure 4 of Chapter II.

There are five primary sections to the DKPD First Aid Form. These sections are the following: (1) Patient Condition, (2) First Aid Performed, (3) Injury Location, (4) Conditions at Scene, and (5) Non-Medical Tasks Performed. The First Aid Report Form was printed in two colors. The officers were instructed to fill out a form on each emergency call whether or not the officer arrived at the scene first. When an officer arrived at the scene of a medical emergency and the EMS unit was already on the scene, the officer was instructed to fill out the top part of the form containing date, case number, etc., and the two primary sections: (1) Conditions at

Scene, and (2) Non-Medical Tasks Performed. When the officer arrived on the scene prior to any medical resources, the officer was instructed to fill out the form completely. When the officer was the first responder, the remaining portions of the form, namely, (1) patient condition, (2) first aid performed by you, and (3) injury location, were also to be filled out.

The section described as Patient Condition was developed by the staff based upon conditions identified from an analysis of the training program. These conditions represented specific parts of the first aid training program in which considerable discussion of diagnosis of these conditions was provided. It was felt that a simple check box form would be most effective in recording the patient condition as perceived by the officer. The second section, First Aid Performed By You, was also developed by an analysis of the training program, and specifically the tasks which were described and demonstrated to the officers. The third section, Injury Location, provided a schematic of a human form in which further detail could be recorded by the officer. Specific marks for broken bones, bleeding, and burns were developed so that an officer who checked "fractures" in the Patient Condition column could also identify the particular fracture location on the human form.

The "Patient Condition" information and the "First Aid Performed" information were both required to calculate the First Aid Performance Index (FAPI). This index represents the weighted sum of the tasks performed for the appropriate condition of the patient as described in Chapter III.

The section, Conditions at Scene, was used to record specific characteristics of the scene which would influence officer performance. The section, Non-Medical Tasks Performed, was developed in order to list the types of tasks performed both before and after the arrival of the EMS unit. Both sections, Conditions at Scene, and Non-Medical Tasks Performed, were used to calculate the Police Task Performance Index (PTPI) which was also described in Chapter III.

In addition to these five primary sections, certain pieces of information were also needed. At the top of the form, the officer filled in the date, street address or location, approximate time, number needing first aid, case number, officer badge number, EMS unit number, type of ambulance on scene, whether or not the ambulance

was on scene at the point of police arrival, and whether or not the ambulance transported the victim. As described in Chapter I, each incident in which an officer is dispatched has a unique six-digit case number. When this case number is included on the form, the appropriate complaint card within the Record Section of the DKPD can be found and the exact dispatch and arrival times as well as other information can be obtained without the officer being required to fill these out. It was determined that more accurate response time information could be obtained if the staff used the complaint card in the Record Section for response time information rather than relying upon the police officer to record the exact dispatch and arrival times. The complaint card dispatch and arrival times are recorded by an IBM clock, and are therefore an accurate representation of response time. Items abstracted from the complaint card included the following: (1) officer dispatch time, (2) arrival time, (3) time in which the officer is back in service, (4) nature of the complaint, (5) the origin of the call, (6) the category of the call or type of complaint, (7) the status of the call (what type of form will be filled out on the call), (8) the police unit number, (9) the census tract, (10) age of the patient if known, (11) race of the patient if known, and (12) the sex of the patient if known.

Forms were printed and then bound in pads of 25, and each officer carried a couple of pads in his unit with his other routine paperwork. As forms were filled out by the officers, the routine paperwork system within the police department was used. From the Uniform Division officers, the forms were carried to the Record Section and the first aid forms were sorted and saved in a stack for Georgia Tech project staff. The project staff visited the Record Section on regular occasions, and using the case number from the First Aid Report, pulled the associated complaint card with matching case number, and completed the response time and other information as noted above. This information was written into the "Comments" section of the form. If space did not permit, this information was recorded on the back of each form. After the information was abstracted, the complaint cards were replaced and the First Aid Report forms were brought back to Georgia Tech for coding onto keypunch forms and subsequently keypunched.

Monitoring the Data Collection Process

Permission was obtained from the police department for four primary project staff members to ride on a regular basis with sector sergeants on the various shifts. There were three objectives in setting up this monitoring process. The first was a public relations activity which was designed to inform the police officers of the objectives of the study and the reasons why their cooperation was important. The second reason was to answer any questions regarding the study or the data collection process as questions came up in the field. It was felt that much better data could be developed if project staff were available to answer questions on a continuing basis. The third objective was to monitor the police officers as they carried out their routine jobs and, in particular, to monitor the officers as medical emergencies were encountered.

A random selection of days and shifts was obtained and a schedule made out for the project staff. It became evident early in the police monitoring process that very few actual first aid encounters would be observed. On a given evening, there are as many as 80 police units operating at once within the county, and monitoring of this number was obviously impossible. Since the project staff were committed to a 10-hour shift, the demands of the project dictated that each of the project staff would be able to monitor the officers only once a month. Therefore, four shifts per month were monitored in this fashion. The decision was also made to ride with sector sergeants who had prime responsibility for officers in the field as described in Chapter I. These sector sergeants were free to travel anywhere within their sector, and thus had a greater likelihood of being able to respond to a medical emergency.

After several months of monitoring police in this manner, and with only isolated medical emergencies observed, the randomized sampling plan for shifts and dates was discontinued to permit a more flexible and workable schedule. It was evident that randomized monitoring in terms of seeing the types of emergencies anticipated was not working. However, it was felt that continuing to ride with the police had significant public relations value as well as allowing the project staff greater insight into the officers' attitudes and

perceptions of first aid delivery. There was, however, little opportunity to actually observe a police officer responding to a medical emergency, and, subsequently, to check the correctness of the form which he filled out.

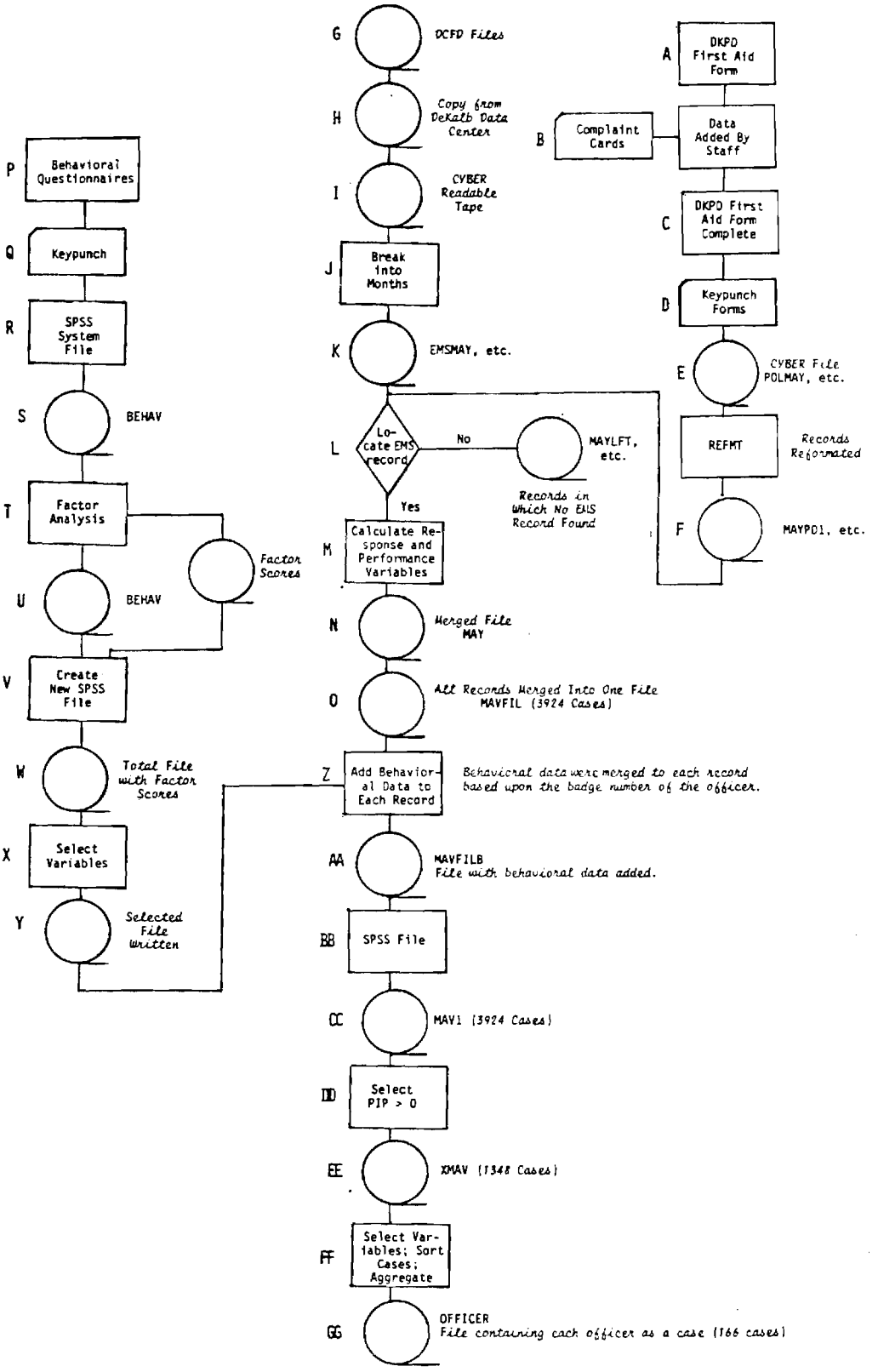
Development of the Data Set

In order to perform computer analyses upon the data collected in the study, a lengthy file build-up process was developed. Conceptually, each record represented an individual encounter with a medical emergency. This individual record had four primary components. The first component was the data recorded on the DKPD First Aid Report Form. The second portion of the data was that abstracted from the police complaint cards. The third segment of the data was the fire department (EMS) record containing information associated with the encounter as recorded by the EMS personnel. The fourth component of the data represented behavioral variables associated with the individual police officer identified by the DKPD First Aid Form. This process is described graphically by Figure 5 .

Figure 5 represents the flow associated with file build-up for subsequent analysis. At point A of Figure 5 the DKPD First Aid Form is completed by the officer. Data are then added by project staff as abstracted from each complaint card which corresponds with the six-digit case number recorded on the First Aid Report Form. The next step in the process, at point C in Figure 5 , represents the complete First Aid Form including data abstracted from the complaint card. The complete DKPD First Aid Form is then coded onto keypunch forms by project assistants and then keypunched onto computer cards. Since there were relatively few items checked on each list of each individual First Aid Report, it was decided to code the actual number associated with a given check box. For example, absent breathing represented box 63 and chest pain represented box 77 on the form; hence, a coding scheme was developed to actually code the number "63" and the number "77" and subsequently write a computer program which would put a "1" in column "63" of the computer card and a "1" in column "77" of the computer card with the objective of significantly lowering the keypunch errors. A sample of the coding forms and other information associated with the coding process is included in Appendix D .

Figure 5

PROCEDURE FOR DATA ANALYSIS



After the forms were keypunched, they were read into a computer disk file on a month by month basis. For example, POLMAY represented the police file for the month of May. After the month of data was input into a machine readable file, a program called "REFMT" reformatted each record into fixed field information suitable for standard statistical packages.

At point G of Figure 5 , the DeKalb County Fire Department files (DCFD files) were used to create a copy for use by project staff. Permission was obtained from the fire department to use these files and the files were actually copied by the DeKalb County Data Center which handles all computer processing for the county. The copy was brought to Georgia Tech and converted into a Georgia Tech CYBER readable tape (point I in Figure 5). A computer program was developed to break the DCFD files into months. For example, "EMSMAY" represents the EMS file for the month of May.

A merge program was written in FLEX Fortran which took a given DKPD First Aid Record and attempted to locate the corresponding EMS record. The merge attempt was based upon three pieces of information; (1) a common date on the individual police and EMS record, (2) the same EMS unit number as recorded on the individual EMS and police record, and (3) a dispatch time which was within 15 minutes on each record. Special provisions were made for matching records which were near midnight (thus the dates being different), as well as other special provisions. When the EMS file for the given month was searched and no EMS record found which matched the police record, the condition of having the EMS unit require a match was relaxed and the file was searched again. This condition was necessitated by the fact that often backup EMS units are used with different numbers; hence, the police would likely record unit 510 as an example, when in reality unit 510 may be the backup unit for unit 501. The DCFD would record the unit as 501 whereas the DKPD would record it as 510.

When the EMS unit number constraint was relaxed, the census tract information which is recorded on both the police and the EMS files was checked for consistency (i.e., "Did the census tract information agree?"). Thus, three merge levels were developed when merging police and fire records. Merge 1 indicated that the date, time, and EMS unit matched. Merge 2 indicated the date, time, and census tract

matched, and Merge 3 indicated that only date and time (within 15 minutes) matched. Police First Aid Records in which no match was found were written into a separate file (for example, MAYLFT, the May records). At point M on Figure 5, those matched records were then processed in order to calculate the First Aid Performance Index (FAPI) and the Police Task Performance Index (PTPI) as described in Chapter III. Since dispatch time data were used during the merge attempt, certain dispatch information was also written onto the file at this point for efficiency in processing.

The First Aid Performance Index and the Police Task Performance Index were calculated using matrix arithmetic. The task performance weights for each measure as described in Chapter III were loaded into matrices. The first aid conditions represented one array and first aid tasks represented another array. The proper FAPI was calculated using these matrices. In a similar fashion, with the conditions at scene represented by an array and the non-medical tasks performed as another array, PTPI was correspondingly calculated. The FAPI and PTPI were then written onto the individual case file.

Since the PTPI was composed of two components (Task Index and the Special Assistance Allowance as described in Chapter III), six different PTPI calculations were developed and recorded on the individual case file. A PTPI consisting of an indicator of police tasks before arrival of the EMS was computed with and without the Special Assistance Allowance, a PTPI was calculated after arrival of EMS with and without the Assistance Allowance, and a combined PTPI was calculated with and without the Special Assistance Allowance. The response time information recorded on the file included the following data. Police and EMS response times were included which were calculated using the difference between arrival times and dispatch times. A measure called "Police Intervention Period" (PIP) was recorded which represented the number of minutes the police officer was on the scene before the EMS arrived. The PIP was calculated using the difference between police arrival and EMS arrival. A negative PIP represented an EMS arrival prior to the police. A "Dispatch Delay" (DD) time was also written on the file which represented the difference between EMS dispatch time and police dispatch time. A positive Dispatch Delay represented the police being dispatched first whereas a negative Dispatch

Delay represented an EMS unit as being dispatched first. These conventions were chosen to be consistent with the PIP calculation. In addition to these items, also included on the case file was (1) the number of first aid tasks, (2) the number of police-related tasks, and (3) the number of patient conditions. The incident categorization composed of 1 of 24 categories as described in Chapter III was also included. The details of the file structure are included in Appendix D.

After all of these calculations and file manipulations were made, each month of data was written into a separate file. For example, the file "MAY" included all of the records for the month of May. After 12 months of data were collected in the individual files, all of the records in each of the 12 months were merged into a large file called "MAVFIL." This resulted in 3924 cases in the total file.

There were approximately 15 thousand EMS runs during the period of the study, including dry runs, etc. The total of 4730 First Aid Reports represents about 30 percent of potential calls which a first responder could have used. The total of 3924 merged records then represents about 25 percent of the potential total in which a first responder could have been used. There are a number of reasons why the total number of merged records was not greater. First, there were some officers who did not fill out First Aid Forms. While this group is thought to be relatively small, no good means of determining the exact number was available. Second, the police officer dispatched to a call in which he arrived after the EMS Unit left the scene subsequently filled out no First Aid Form on the case. There were also cases in which the fire department dispatcher did not notify the police department. Some examples include EMS requests in the city of Decatur which is in DeKalb County but is not in the DKPD jurisdiction, as well as other similar municipalities within DeKalb County. A great number of EMS unit records also represented dry runs, i.e., calls in which no patient was transported. Many officers felt that they should not fill out a form on these particular cases.

Table 21 identifies the number of cases by month which were contained in the DKPD first aid files. The number of merged records and the number of records in which no EMS record was found are also included.

Table 21

NUMBER OF MERGED RECORDS BY MONTH

Month	Total Records	No Match	Mult. Inj.	Wrong Amb.	Total Merged
May	484	62	30	31	361
Jun	426	36	20	13	357
Jul	468	59	26	11	372
Aug	437	82	6	13	336
Sep	415	40	20	11	344
Oct	400	26	3	11	360
Nov	295	26	8	6	255
Dec	333	41	7	10	275
Jan	358	33	6	8	311
Feb	359	32	6	7	314
Mar	415	59	1	5	350
Apr	340	31	11	9	289
Total File	4730	527	144	135	3924

Of the total of DKPD First Aid Reports processed, there were a number of factors which led to no EMS record being found. First, during the merge attempt, cases in which two or more patients were treated at the scene were skipped. The interpersonal dynamics associated with treating multiple patients on the scene were felt to be too complicated by the staff to develop a First Aid Performance Index. It is certainly recognized that the police officer should be even more effective with multiple trauma patients. It was realized, however, that unless on-scene monitoring was available, the Performance Index would have little meaning.

During the merge attempt, records which showed ambulance units other than the DeKalb County Fire Department as responding to the emergency were also deleted from analysis. This group, while an important source of information, was not represented by an appropriate record in the EMS Unit files.

In the non-merged record group, an EMS record was not located for several reasons. One reason was that the difference in dispatch time could have been longer than 15 minutes. This could have occurred because of actual dispatch time longer than 15 minutes or keypunch errors

in the dispatch time. Another source of lost cases could be keypunch errors in the date or possible improper recording of the date by the individual officer. For example, a case which occurred just after midnight could have been recorded improperly as the day before. When a few minutes dictated a date change, the officer may have incorrectly recorded the date.

At this point in the file buildup, each record represents 6 80-column card images of data--3 card images for the first aid information and 3 card images for the fire record information. This file, "MAVFIL," is shown as point O in Figure 5.

The final information on the overall case file represents the behavioral information associated with each officer. At point P on Figure 5, the behavioral questionnaires were filled out by the officer, the questionnaires were keypunched, and a systems file was developed for statistical processing. The statistical package used throughout the project was SPSS, Statistical Package for the Social Sciences (Nie, et al., 1975). File "BEHAV" represented all of the behavioral information for 221 officers. This is the file in which the analysis of behavioral characteristics as described in Chapter IV was developed. From this file, a factor analysis of the behavioral variables was performed as described in Chapter IV and factor scores (one factor score representing each officer) were written on a separate file. These factor scores and the original "BEHAV" file were merged to create a new file including the factor scores. The total file was then available to selected certain behavioral variables which were written on a separate file shown as point Y in Figure 5. These selected variables which include the factor scores represent the behavioral variables of interest in further analysis of behavioral variables versus performance variables. These behavioral variables for each officer were then added to each of the 3924 cases according to the individual officer badge number. This represents point Z on Figure 5. The behavioral variables were contained on three card images of data and at point AA, the file "MAVFILB" represented the merged file including information consisting of 3924 cases which contained nine card images for each case. This file was then used to create an SPSS system file called "MAV1." MAV1 was the first of three files used in subsequent data analysis.

The second of three files used for data analysis was generated by selecting only those cases in which the Police Intervention Period (PIP) was greater than 0, i.e., only those cases in which the officers arrived first thus having the opportunity to perform as a first responder in an emergency situation. This file, called "XMAV," contained 1348 cases. This file represents the primary file used in all analyses of officer first aid performance. The final file of the three represents an aggregated file in which each of the cases for an individual officer are taken together and each variable is represented by the variable mean. For example, the FAPI for the individual officer who has responded to seven cases would be the mean of each of the FAPIs of those seven cases. Similar means were developed for the other variables. This file was named "OFFICER" and contained 166 cases, thus representing 166 individual officers. It is noted that the file contains 166 versus the original 221 officers who completed the questionnaire, thus implying that only 166 officers filled out First Aid Reports.

There are several reasons for this reduction in the officer file. First, all of the administrative and supervisory officers filled out the behavioral questionnaire but were not in a position to respond to medical emergencies. Other officers were assigned to special tasks which did not require responding to emergencies. These reductions left about 182 officers who would be expected to complete First Aid Reports based upon their assignments. With 166 officers responding, a response rate of 91.2 percent was then obtained.

Of the remaining officers expected to submit forms, several transferred to other divisions of the police department (e.g., the Criminal Investigation Unit) and others may have been the group who did not fill out the questionnaire initially. Officers who did not fill out the questionnaire could not be included on the file since the behavioral information was missing.

In summary, three files were created for data analyses. The file MAV1 contained the 3924 cases representing those incidents in which police responded to emergencies and submitted a First Aid Report. The file XMAV represented the 1348 cases in which the officer was at the scene prior to the EMS Unit. This file contained the true case experience of the first responder. The final file,

OFFICER, contined the aggregate experience of 166 officers in responding to emergencies. The variables in this file represented the individual variable means of the cases for each officer. As an example, the FAPI for each officer was the mean of the individual FAPIs of the cases in which the first arrived upon the scene.

CHAPTER VI

MEASURES OF POLICE PERFORMANCE

This chapter contains four sections, each section representing a specific police performance study. The first section involves a study of police and fire department (EMS) response times. In the second section, specific performance measures are discussed, including scores on the First Aid Performance Index (FAPI) and the Police Task Performance Index (PTPI), as well as the specific first aid conditions encountered by the officer, the specific tasks which the officer performed, and other police related tasks which were performed at the scene. The third section of this chapter describes several performance models which were used to study the relationships among the various variables of the study. The final section includes the results of a study which measured attitudes of public emergency access.

Police Response Time Study

The police response time study examined several factors, including the police response time, EMS unit response time, the police intervention period (PIP),[1] the relationship of response time to population density, and the relationship between response time and several variables including the type of call and the origin of the call.

Police Versus EMS Response Time

Table 22 describes the police and EMS response times in minutes. The mean response time for the police is 5.2 minutes, whereas the mean for EMS is 7.2 minutes. From the cumulative percentages in Table 22, it is noted that there is a consistent pattern beginning at 3 minutes which shows the police leading EMS by 2 minutes throughout the range of response times. For example, about one-third of the calls have response times of 3 minutes or less for the police, whereas one-third of the calls have response times of 5 minutes or less for EMS. Again, at 7 minutes, 79 percent of the calls have response times of 7 minutes or less for the police department, and 9 minutes or less for EMS. The

[1] As previously defined, the PIP is the time in minutes in which the officer is on the scene prior to the arrival of the EMS unit.

response time information of Table 22 is not surprising, since there are 9 EMS units in operation as opposed to potentially 80 police units at any one time. It is also obvious that a high performance police car can have a significantly lower response time than an EMS unit.

Table 22

POLICE AND EMS RESPONSE TIME IN MINUTES

	Police		EMS	
Minutes	Cases	Cumulative Percent	Cases	Cumulative Percent
0	253	6.5	21	.5
1	176	11.1	36	1.5
2	422	21.9	106	4.3
3	562	36.4	237	10.4
4	491	49.1	410	21.1
5	490	61.7	494	34.0
6	387	71.7	523	47.7
7	290	79.1	472	60.0
8	225	84.9	411	70.7
9	173	89.4	321	79.1
10	104	92.1	231	85.1
11	71	93.9	185	89.9
12	66	95.6	123	93.1

Dispatch Delay

Table 23 represents a study of dispatch delay between the EMS and police departments. As has been previously discussed, dispatch delay represents the difference in time between the dispatch of the police unit and the dispatch of the EMS unit. A positive dispatch delay indicates that the police unit was dispatched first. As was noted in Chapter I, in theory, the police unit and EMS unit are dispatched simultaneously by means of a ring-down telephone line which connects the two dispatch centers. As can be seen from Table 23, the simultaneous dispatch assumption is not correct.

The result of two separate dispatch delay studies is given in Table 23. For the columns marked "Total Cases" it can been seen that the EMS unit was dispatched prior to the police unit about 85 percent of the time or in 2984 of the 3924 cases. In only about 10 percent of the cases were the police dispatched first. In the other study marked

"Police Arrival First" in which the police arrived on the scene prior to EMS, the EMS unit was dispatched first in about two-thirds of the cases, whereas about 12 percent of the cases indicated a police dispatch prior to EMS dispatch. This study was composed of 1348 cases. The mean dispatch delay for the total case study was -2.83 minutes. For the smaller study in which the police arrived first on the scene, the dispatch delay mean was -0.30 minutes. The entire dispatch procedure can be shown schematically in Figures 6 and 7. In Figure 6, it is seen that the EMS unit is dispatched approximately 3 minutes ahead of the police department with an EMS response time of approximately 7 minutes. The police unit response time is approximately 5 minutes, and therefore the police unit arrives on the scene approximately 1 minute after the EMS unit. Figure 7 represents the 1348 cases in which the police unit arrives first on the scene. It is seen that the EMS unit is again dispatched first, but only 0.3 minutes ahead of the police unit. Response time for the EMS unit is 8.7 minutes, whereas the police unit responds in 3.4 minutes. It is seen then that the average police intervention period (PIP) is approximately 5 minutes. Thus, for these cases, the police unit arrives approximately 5 minutes ahead of the EMS unit.

Table 23

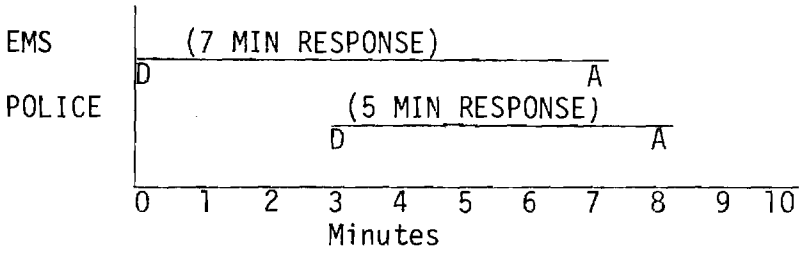
DISPATCH DELAY IN MINUTES

	Total Cases		Police Arrival First	
Minutes	Cases	Cumulative Percent*	Cases	Cumulative Percent*
-7	130	12.1	10	1.6
-6	239	18.2	38	4.4
-5	360	27.3	72	9.7
-4	619	43.1	148	20.7
-3	749	62.2	240	38.5
-2	568	76.7	230	55.6
-1	319	84.8	162	67.6
0	137	88.3	84	73.8
1	81	90.4	50	77.5
2	49	91.6	34	80.0
3	32	92.4	27	82.0
4	40	93.5	33	84.5
5	34	94.3	30	86.7
6	28	95.0	22	88.4
7	25	95.7	20	89.8

*The cumulative percent columns also represent cases with dispatch delays greater than -7 minutes. The table was reduced for brevity.

Figure 6

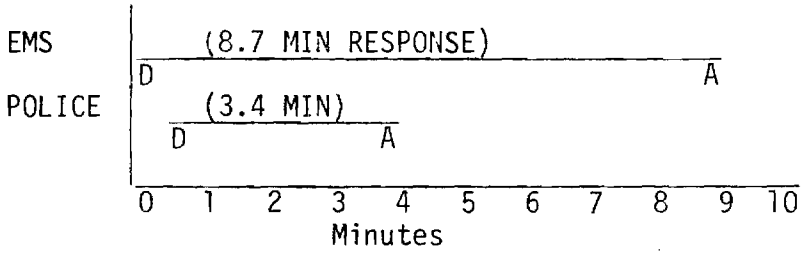
RESPONSE TO MEDICAL EMERGENCIES BASED ON 3924 CASES



D=DISPATCH
A=ARRIVAL
Mean PIP=-1.0 Minutes
Mean Dispatch Delay = -2.8 Minutes

Figure 7

RESPONSE TO MEDICAL EMERGENCIES BASED ON 1348 CASES
(THOSE IN WHICH THE POLICE ARRIVED FIRST)



D=DISPATCH
A=ARRIVAL
Mean PIP = 5.1 Minutes
Mean Dispatch Delay = -0.3 Minutes

Table 24 shows the dispatch delay in minutes based upon the origin of the call. The category, "Phone," represents those cases in which the person needing emergency aid notifies the police department directly by phone. In the category, "Fire Department," the police department is notified of the emergency by the fire department on the ring-down line. The category marked "Other" includes several miscellaneous categories, including other police departments, CB radio, etc. It is seen in Table 24 that there is a significant difference between dispatch delay when the call comes in by phone versus the call coming in from the fire department. It should be noted that a small negative average delay, even with calls coming in by phone, is due to the procedure by which the police dispatches calls. As was discussed in Chapter I, the telephone operator in the police department records the necessary information from an incoming call on a complaint card which then travels by track to the adjacent radio room. The radio room then uses the complaint card to dispatch the appropriate police unit. When the operator who takes the call initially completes the complaint card, she notifies the fire department directly by ring-down line, thus allowing the fire department the opportunity to dispatch a vehicle first in many instances.

Table 24

DISPATCH DELAY IN MINUTES
ACCORDING TO ORIGIN OF CALL

Origin	Cases	Dispatch Delay in Minutes
Phone	733	-0.02
Fire Dept.	2754	-3.72
Other	417	-1.83
Total	3904	-2.82

This research study has not attempted to speculate as to the reason why there is a significant dispatch delay in transferring calls from fire department to police department, whereas that delay does not exist in transferring calls from the police department to the fire department. It has been found, however, that many police officers feel that the fire department is purposely holding calls to allow the

EMS unit to arrive on the scene prior to the police unit. If this is the reason, or one of several reasons, then the concept of the police first responder is seriously limited in this setting.

Police Intervention Period (PIP)

Table 25 represents the police intervention period (PIP) which is the time between the arrival of the police unit and the arrival of the EMS unit. A positive PIP represents the situation in which the police officer arrives first, whereas a negative PIP indicates an EMS arrival first. Table 25 contains two studies, the actual PIP and the potential PIP for the 3780 cases in which this information existed. Actual PIP represented the difference between the arrival time of the police and the arrival time of the EMS unit. The potential PIP calculation assumed that the EMS unit and the police unit were dispatched simultaneously. The potential PIP, therefore, was calculated by taking the difference between the EMS response time and the police response time. Table 25 then shows that the police would have arrived first in 66 percent of the cases, whereas the police actually arrived first in 35.7 percent of the cases. It is also shown that in about 10 percent of the cases, both organizations arrived simultaneously. The respective means for the potential PIP and the actual PIP were 2.0 minutes and -0.98 minutes, respectively. This shows that while the police first responder concept has significant potential, the potential was not utilized to its fullest.

Table 25

POTENTIAL VERSUS ACTUAL
POLICE INTERVENTION PERIOD (3780 CASES)

	Number of Cases		Cumulative Frequency (Percent)	
PIP	Potential	Actual	Potential	Actual
-4	84	233	9.5	30.4
-3	144	277	13.3	37.8
-2	188	319	18.3	46.2
-1	256	385	25.0	56.4
0	342	301	34.0	64.3
1	389	279	44.3	71.7
2	389	204	54.5	77.1
3	387	167	64.8	81.5
4	347	122	73.9	84.8
5	255	122	80.6	88.0
6	220	80	86.4	90.1
7	147	68	90.3	91.9
8	108	66	93.1	93.7
9	80	40	95.3	94.7

Table 26 describes the distribution of positive potential PIP where the actual PIP was 0 or negative. In 1217 cases (31 percent of the total), it is shown that the police could have been on the scene for 3 minutes or greater in half of the cases, and 4 minutes or greater in one-fourth of these cases.

Table 26

DISTRIBUTION OF POSITIVE POTENTIAL PIP WHERE ACTUAL PIP IS ZERO OR NEGATIVE

Potential PIP	Number of Cases	Cum. Percent of all 3924 Cases
Over 6	45	1.2
6	50	2.4
5	77	4.4
4	158	8.4
3	238	14.5
2	314	22.5
1	335	31.0
Total	1217	31.0

Analysis by Origin and Type of Call

Table 27 shows the distribution of calls by origin. It is seen that only 18.7 percent of the emergency medical cases come into the police department by phone. The major portion of cases are transferred from the fire department to the police department. This notification represents over 70 percent of all cases. Table 28 shows the distribution of cases by category of emergency call. It is seen that 87.5 percent of all cases represent medical emergencies in which there is not a primary police role. Ten percent of the cases represent traffic accidents or injuries of some type. In only 2.4 percent of the cases are there medical emergencies in which there is some crime related component. The category, "Public Safety," is extremely small with only 6 cases out of the 3924 in this category.

Table 27

ORIGIN OF CALL

Category	Cases	Percent Cases
Phone	733	18.7
Fire Dept.	2764	70.4
All Other	427	10.9
Total	3924	100.0

Table 28

CATEGORY OF
EMERGENCY MEDICAL CALLS

Category	Cases	Percent Cases
Crime	93	2.4
Medical	3416	87.5
Traffic	389	10.0
Public Safety	6	.2
Total	3904	

Table 29 shows police response time and EMS response time as it varies between the two primary categories, medical and traffic. It is seen that the police response time is significantly smaller in cases which are dispatched as traffic cases versus those which are medically related only. It is also seen that EMS response time is approximately 7 minutes and not significantly different in these categories. Based upon the police officer perception that there is likely to be an EMS unit already on the scene in a medically related case, this difference in response times was expected. Police are, therefore, not likely to respond as quickly to medically related emergency situations since the EMS unit is likely to be there already. This slower response time is also a factor in lower actual PIP intervals since a faster response time would allow a longer PIP and would produce more cases in which the police actually arrive first.

Table 29

RESPONSE TIMES BY CATEGORY

Variable	Category	Cases	Mean	Significance
Police Response Time	Medical	3384	5.33	$p < .001$
	Traffic	382	4.18	
EMS Response Time	Medical	3338	7.22	Not significant
	Traffic	378	7.05	

By the use of t-tests, the police response time also appeared to vary with the origin of the call; however, this was due to the fact that origin of the call was heavily dependent upon the category of the case. For example, more calls came in to the police department which were traffic accident related than came in to the fire department. Conversely, a greater proportion of medically related calls came in to the

fire department as opposed to the police department. These relationships can be seen in Table 30. This table shows response time of the police by origin and by category. Response times for traffic conditions were significantly smaller than for medically related cases only. It is interesting to note that traffic accidents which are reported to the fire department first have a very low police response time. It appears that in these calls the police officers are making a special effort to arrive at the scene when they know that the fire department is enroute to the call. (It should be noted that when calls are received by the fire department and are transferred to the police department, the police dispatcher indicates to the officer that EMS is enroute, thus signifying to the officer that EMS had received the call first.)

Table 30

POLICE RESPONSE TIME IN MINUTES
ACCORDING TO ORIGIN AND CATEGORY OF CALL
(Number of cases in parentheses)

Call Origin	Category of Call			
	Crime	Medical	Traffic	Public Safety
Phone	5.2 (56)	5.4 (434)	4.6 (236)	5.0 (1)
Fire Dept.	4.2 (18)	5.5 (2634)	3.9 (65)	6.0 (5)
Other	3.8 (18)	4.03 (316)	3.1 (81)	0 (0)

Table 31 shows the corresponding EMS response times by category and by origin. Again, the origin designated "Phone" in this table represents calls coming into the police department, even though this table is giving EMS response times. It is seen that the response times by category and by origin are not significantly different. Each response time is around 7 minutes.

Table 32 shows two specific conditions, "auto accidents" and "persons down." It is seen that the police response time is again greatly different for accident situations than for the person down category. In 37 cases in which the fire department notified the police department of accident situations, the average police response time was a very low 3.1 minutes. Again, the motivation to arrive first of the police officers is apparently shown in the significant response time

differences. Table 36 gives a more detailed analysis of dispatch delay. Dispatch delay is represented according to origin of call and category of call. It is shown that dispatch delay, when the call comes into the fire department, is over 3 minutes with the exception of the traffic cases, in which the difference is 2.5 minutes. When the call comes into the police department, it is seen that even the dispatcher appears to treat the calls involving traffic injuries with greater haste than for medically related injuries only. This may be due to the fact that the dispatcher sometimes dispatches a police unit on a call which has been reported as "possible injuries" and hesitates to notify the fire department until the injuries are confirmed, providing a larger dispatch delay average.

Table 31

EMS RESPONSE TIME IN MINUTES
ACCORDING TO ORIGIN AND CATEGORY OF CALL
(Number of cases in parentheses)

Call Origin	Category of Call			
	Crime	Medical	Traffic	Public Safety
Phone	7.5 (56)	7.1 (429)	6.8 (231)	6.0 (1)
Fire Dept.	7.1 (18)	7.2 (2600)	7.3 (69)	4.2 (5)
Other	6.9 (18)	7.1 (309)	7.5 (78)	0 (0)

Table 32

POLICE RESPONSE TIME IN MINUTES
ACCORDING TO ORIGIN AND TYPE OF CALL
(Number of cases in parentheses)

Call Origin	Call Signal	
	Accident	Person Down
Phone	4.7 (207)	5.4 (390)
Fire Dept.	3.1 (37)	5.5 (2426)
Other	3.2 (79)	4.1 (308)

Table 33

DISPATCH TIME IN MINUTES
ACCORDING TO ORIGIN AND CATEGORY OF CALL
(Number of cases in parentheses)

Call Origin	Category of Call				Row Total
	Crime	Medical	Traffic	Public Safety	
Phone	1.04 (57)	-.61 (437)	.824 (238)	-3.00 (1)	-.02 (733)
Fire Dept.	-3.33 (18)	-3.77 (2661)	-2.50 (70)	2.60 (5)	-3.72 (2754)
Other	-1.17 (18)	-2.42 (318)	.346 (81)	0 (0)	-1.83 (417)
Column Total	-.24 (93)	-3.24 (3416)	.13 (389)	1.67 (6)	-2.82 (3904)

Analysis by Population Density

Table 34 describes the population statistics by area for DeKalb County. Certain census tracts were selected in this study as being primarily rural in nature. These census tracts included 219, 232, 233, and 234. As shown in Table 34, this group of census tracts has an area of 89,036 acres and a population of 90,359. This population represents 19.5 percent of DeKalb County's residents whereas this area is greater than half of the total land area of DeKalb. It is seen also that this group of census tracts which are labeled "rural" in this study represent a population density of 1.01 persons per acre. For the area labeled "urban," the population density is 4.5 persons per acre. This is not a formal definition of "rural," however, the intent of this analysis was to determine the difference in response in the sparcely populated areas of the county.

Table 34

POPULATION STATISTICS BY AREA

Area	Population	Percent Population	Acres	Population Density
Urban	373841	80.5	82267	4.54
Rural	90359	19.5	89036	1.01
Total	464200	100.0	171303	2.71

Table 35 shows that 23.8 percent of the cases labeled "rural" represent 10.3 emergency cases per thousand population for this study. It is seen, then, that there is a higher number of cases per thousand population in the rural area than for the urban area. In particular, census tract 233 had a population density of only 0.45 persons per square mile. This census tract represented 163 emergency cases in the study, or 13.6 cases per thousand population.

Table 35

NUMBER OF CASES IN STUDY
ACCORDING TO AREA

Area	Cases	Percent Cases	Cases per 1000 Pop.
Urban	2990	76.2	8.0
Rural	934	23.8	10.3
Total	3924	100.0	8.5

Table 36 describes the average response times by area and shows that both police response time and EMS response time are significantly greater in rural areas than in urban areas. The differences between police and EMS response times, however, are still only 2 minutes. Table 37 shows average response time for police and EMS by area and by origin of call. EMS response time for rural areas is 7.57 minutes with origin by phone (police) versus 8.08 minutes with the call coming in to the fire department. This difference of one-half minute is probably due to the fact that it is easier to find automobile accidents (most of which are represented by the phone origin) than by finding rural residence locations. Most of the other average response times are similar to the previous data.

Table 36

RESPONSE TIMES BY AREA

Variable	Area	Cases	Mean	Significance
Police Response Time	Urban	2957	5.00	$p < .001$
	Rural	924	5.85	
EMS Response Time	Urban	2919	6.96	$p < .001$
	Rural	915	7.94	

Table 37

RESPONSE TIME IN MINUTES FOR POLICE AND EMS BY AREA AND ORIGIN OF CALL

Area		Origin of Call			Row Total
		Phone	Fire Dept	Other	
Urban	Police	4.96	5.21	3.64	5.00
	EMS	6.92	6.97	6.95	6.96
Rural	Police	5.72	6.14	4.48	5.85
	EMS	7.57	8.08	7.67	7.94
Column Total	Police	5.11	5.43	3.88	5.20
	EMS	7.05	7.24	7.15	7.20

In summary, it has been shown that police respond to medical emergencies approximately 2 minutes faster than the EMS unit in both rural and in urban areas. It has also been seen that a dispatch delay exists when calls come into the fire department versus calls which come into the police department. This dispatch delay has been perceived by the individual police officers to allow the fire department to arrive on the scene first. It has also been shown that response time varies by category of call; specifically, solely medically related calls have longer police response times than traffic related calls. Response time in rural areas is approximately 1 minute longer for both police and EMS units. The potential PIP, assuming simultaneous responses by the fire and police departments, show that police can be on the scene prior to EMS in 66 percent of the cases. However, in only 35 percent of the cases did police actually arrive prior to EMS. Half of the other 31 percent of the cases could potentially have had a PIP of 3 minutes or more.

Description of Police Performance

This section discusses police performance from several points of view. The First Aid Performance Index (FAPI) is described, and its use as a first aid performance measure is discussed. The results of the Police Task Performance Index (PTPI) are also discussed in terms of the value of this index in describing non-medical police performance at the scene. Finally, relationships among the various variables will be described and the important relationships presented.

Summary of Conditions Encountered and Tasks Performed

The performance of the police officer at the scene of medical emergencies was evaluated through the use of the DKPD First Aid Report, which was discussed previously. This report contained five major sections as follows: (1) Patient Condition, (2) First Aid Performed, (3) Injury Location, (4) Conditions at Scene, and (5) Non-Medical Tasks Performed. The descriptive results of processing the 1348 cases in which the police arrived prior to EMS are described in the following sections. It is shown in Table 38 that the major condition noted was pain, having 530 cases (39 percent of the cases), followed by minor to moderate bleeding with 267 cases (20 percent), and abnormal/difficult breathing with 279 cases (21 percent). Several other condition categories had fairly large encounters including abnormal pulse, semi-consciousness, pale/bluish skin color, chest pain, dizziness/fainting, and fractures. It is also noted that several condition categories were very infrequent. For example, Table 38 shows only four cases of uncontrollable bleeding, six cases of chemical burns, eight cases of thermal burns, two cases of drowning, no cases of heat stroke, six cases of high temperature convulsions, seven cases of impaled objects, and only eight cases of poisoning. However, time spent in the training program to detect and provide initial care for these cases still appears justified.

Table 38

PATIENT CONDITIONS ENCOUNTERED

Condition	Incidence
Breathing	
Absent	22
Abnormal/Difficult	279
Pulse	
Absent	18
Abnormal	147
Consciousness	
Semi-Conscious	147
Unconscious	59
Bleeding	
Minor to Moderate	267
Severe	27
Uncontrollable	4
Skin Color	
Pale/Bluish	162
Flushed/Red	74
Bites and Stings	13

Table 38

PATIENT CONDITIONS ENCOUNTERED
(continued)

Condition	Incidence
Burns (Chemical)	6
Burns (Thermal)	8
Chest Pain	175
Dislocations	20
Dizziness/Fainting	183
Drowning	2
Drug Overdose	88
Emergency Childbirth	24
Epileptic Seizure	61
Fractures	113
Heat Stroke	0
High Temperature Convulsions	6
Impaled Objects	7
Mental Problems	37
Nausea/Vomiting	66
Pain	530
Poisoning (By Mouth)	8
Puncture Wounds	32
Shock or Heat Exhaustion	37
Stroke	34
Other	28

First Aid Performed

Table 39 describes the first aid tasks actually performed by the officers represented in the 1348 cases. As shown in Table 39, the task, "Calm and Reassure," was performed in 365 cases, or 21 percent of the cases. Other frequently encountered tasks included checking for pulse, checking for breathing, positioning victim for comfort, keeping victim warm, a variety of bleeding control tasks, and establishing and maintaining the patient's airway. It is also noted that there were 12 cases of CPR performed, and 8 cases of various artificial respiration techniques.

With 113 fractures reported (Table 38), it was surprising that there were no splints applied as seen in Table 39. Actually, there was one case of a splint applied in which an officer responded to a shopping center emergency, applied a splint to a young patient's arm, whose mother subsequently took him to the hospital. The EMS unit apparently did not find the location, or did not arrive in time to handle the case. This case, therefore, was not included in the analysis, since no corresponding EMS record was available. The absence of splints applied probably indicates the officers' confidence in the early arrival of EMS.

It is also seen in Table 39 that the vast majority of first aid tasks which were performed were those without the requirement of first aid equipment. For example, tasks such as airway maintenance, artificial respiration, CPR, calm and reassure, check for pulse and breathing, and others require no specific first aid equipment. It is observed that in this operational setting, the necessity for first aid kits being readily available is not nearly as important as a well-trained officer who can perform basic stabilization procedures.

Table 39

FIRST AID PERFORMED

First Aid Tasks	Incidence
Airway (Establish)	19
Airway (Maintain)	37
Apply Compress/Bandage	39
Apply Splint	0
Artificial Respiration	
Mouth-to-Mouth (Nose)	7
Other (List)	1
Calm and Reassure	365
Check for Breathing	158
Check for Pulse	185
Clean Wound	18
Control Bleeding	
Direct Pressure	69
Pressure on Artery	6
Elevation	22
CPR	12
Dilute Poison With: _____	2
Elevate Feet	11
Elevate Head	25
Extricate Victim	2
Flush With Water	1
Fluids By Mouth	4
Immobilize Impaled Object	2
Immobilize Injury	39
Induce Vomiting	1
Loosen Clothing	43
Lower Body Temperature	3
Monitor Pulse and Respiration	45
Keep Victim Warm	81
Remove Contaminated Clothing	6
Position Victim for Comfort	133
Restrain Victim	33
Straighten Fracture	1
Other	6

Injury Location

Table 40 summarizes the injury locations which were recorded by the officers for the 1348 cases. This injury location summary represents the data recorded on the human figure in the DKPD First Aid Report. It is seen that injuries resulting in blood loss were the most frequent injuries recorded, particularly injuries to the head and face. These types of injuries are common in traffic accident situations.

Table 40

INJURY LOCATION

Location	Injury Type			
	Fractures	Bleeding	Burns	Fractures and Bleeding
Head		99	4	1
Face	3	63	2	4
Eye		7	3	
Neck	1	3	1	
Left Shoulder, Arm, Hand	18	39	3	1
Right Shoulder, Arm, Hand	8	39	8	2
Back	6	4	3	
Chest	8	4	1	
Abdomen		10		
Pelvis		3		
Buttocks	7	8	1	
Lower Left Extremity	26	25	2	1
Lower Right Extremity	20	28	1	

Condition Category

Since there are many patient conditions, an analysis was made of the Category I and Category II conditions which were the most serious. A Category I condition represents a patient in critical condition, whereas a Category II condition represents a patient in serious condition. Table 41 lists the patient conditions associated with Category I and the conditions associated with Category II. As was expected, there was a much greater number of Category II cases than Category I.

Table 41

CATEGORY CODES AND FREQUENCY

Category I	Code	Cases	Category II	Code	Cases
Absent Breathing	1	22	Abnormal Breathing	1	279
Absent Pulse	2	18	Abnormal Pulse	2	147
Bleeding (Uncontrollable)	4		Bleeding (Severe)	4	27
Poisoning	8		Burns (Chemical	8	6
Puncture Wounds (Head & Torso)	16		Chest Pain	16	175
Shock	32		Unconscious	32	59
Total					

In attempting to analyze multiple patient conditions, a numerical code was given to each of the Category I and Category II conditions. Each condition within each category was given a number represented by 2^x, with x having values from 0 to 5 (i.e., 1,2,4,8,16 and 32). This resulted in the assignment of a unique number for each condition combination. The approach allowed multiple conditions to be additive, as shown in Table 42. For example, there is one case with a code of 35 for the Category I condition. This patient had the combination of three conditions--Shock (Code 32), Absent Breathing (Code 1), and Absent Pulse (Code 2). The code of 35 thus uniquely identifies the combination of these three conditions since no other combinations can add up to 35. Table 42 represents the composite of Category I and Category II patient conditions. The additive nature of the conditions thus allows the ability to determine the number of multiple conditions and the typical patterns seen in multiple conditions. For example, the number 3 in the Category I column represents the combination of absent breathing (Code 1) and absent pulse (Code 2). The top row in Table 42 represents patients with Category I injuries only, whereas the left most column represents patients who have Category II injuries only. The other entries in the table represent the number of patients who have a combination of specific Category I and Category II conditions. It should be noted that the other categories of conditions are not included in this analysis; therefore, a number of patients who have Category I injuries only, as noted in Table 42, could have Category III or IV injuries in addition.

Several patterns exist in the data of Table 42. For example, there are 11 patients who were unconscious (Code 32, Category II), and who were listed as absent breathing and absent pulse (Code 3, Category I). There were also four cases with abnormal pulse and breathing with associated chest pain.

There are several indicators in Table 42 which tend to show that the police officer does not fill out the form completely. For example, there are 18 cases of shock (Code 32, Category I), in which no indication of absent or abnormal breathing/pulse was indicated. With 18 cases out of a possible 37, it appears that the breathing/pulse categories were not filled out properly.

In overview, it is seen that out of 1348 cases, a total of 508 cases represented patients who had a Category I and/or Category II injury. This represents 38 percent of the cases in which the officer arrived prior to the EMS unit.

Table 42

PROFILE OF CATEGORY I AND II INJURIES

Cat.	Category I												Column
II	0	1	2	3	4	8	16	17	32	35	40	48	Total
0	840	1		2	2	6	19		18		1	2	891
1	110					1	1		4				116
2	19	1			1				2				23
3	55						4		1				60
4	15								2				17
5	2												2
6							1						1
7	2												2
8	6												6
16	81	1							1				83
17	42		1										42
18	14												14
19	30												30
21												1	1
32	16	1		11						1			29
33	6		2										8
34		2											2
35	7				1		1		3				12
36				1			1	1					3
37												1	1
49	1												1
51	3												3
Row Total:	1249	6	3	14	4	7	27	1	31	1	1	4	1348

First Aid Performance Index

Table 43 provides an example of the difficulty of relating specific tasks performed to specific conditions encountered. As was shown in Table 41, there were four patients who had uncontrollable bleeding. The number of

additional related conditions versus the number of first aid tasks as shown in Table 43 makes an individual assessment by specific condition almost impossible. For example, two of the four cases had eight or more first aid tasks associated with the patient injury situation, and these same two cases had four or more related conditions including uncontrollable bleeding. It was therefore necessary to develop a composite index which would describe the police officer's performance as a quantitative measure to allow for comparison among officers and among specific operational situations. Thus the First Aid Performance Index (FAPI) was developed, which provided a means of quantifying the officer's performance, given the specific conditions of the patient and the specific tasks which the officer performed. The development of the FAPI is described in detail in the Final Report of the Project.

Table 43

EXAMPLE OF FOUR PATIENTS WITH UNCONTROLLABLE BLEEDING

Number of Conditions	Number of First Aid Tasks		
	2	8	9
2	1		
3	1		
4			1
6		1	

Scores on the FAPI

Table 44 represents a summary of scores on the First Aid Performance Index (FAPI) of the 1348 cases. It is seen that 870 cases, or 64.5 percent, had an FAPI of 0. The mean of all FAPI scores was 13.6; however, this mean is misleading due to the large number of cases in which there was an FAPI of 0. Of the 478 cases in which there was a positive FAPI, the mean for these cases was 38.3. Approximately one-third of the cases ranged from FAPI scores of 2 to 27, one-third from 28 to 43, and one-third from 44 to 100. It is noted that in 12 encounters, a score of 100 was made on the FAPI index.

Table 44

SCORES ON FIRST AID PERFORMANCE INDEX (FAPI)

Range	Number of Cases	Cum. Percent Cases
0	870	64.5
1-10	25	66.4
11-20	58	70.7
21-30	98	78.0
31-40	111	86.2
41-50	882	92.3
51-60	43	95.5
61-70	36	98.1
71-80	7	98.7
81-90	6	99.1
91-100	12	100.0

Relationships Between the FAPI and Other Variables

Table 45 describes the relationships between the FAPI and other variables. This table summarizes the results of several t-tests which were conducted on the FAPI scores to determine relationships among FAPI and other significant variables. The t-test is the statistic used in calculating the probability that the mean FAPI scores are equal when classified into two groups according to an explanatory variable. The first group shown in Table 45 represent those cases in which the police officer has a medical associate. (Medical associates are described in the Attitudes and Perceptions Chapter.) It is seen that the mean FAPI score is higher for those who have medical associates than those who do not. Those with medical associates (e.g., wives) may therefore be more familiar with or more interested in medical practices which may cause them to have a greater interest in first aid delivery.

The second variable divides the cases into medically related (e.g., heart attack) and traffic related cases. As shown in Table 45, the mean FAPI score is higher for traffic related cases than medical. Hence, the officer is more likely to perform first-aid procedures in a traffic related case than in a medical related case. The third category represents a division among cases which come directly into the police department and those which come into the police department by way of fire department dispatch. It is seen that the mean FAPI scores are higher for those cases which come in directly through the police department (phone) than those which are relayed through the fire department.

Thus, while statistically significant, those cases relate back to the second group, medical versus traffic cases, in that those cases which come into the police department directly are more likely to be traffic cases as has been shown. The fourth group represents those cases consisting of Category I emergencies versus all other emergencies. It is seen that the mean FAPI score for Category I emergencies is approximately double that of the other emergencies. This demonstrates that for very serious injuries, the police officer is much more likely to perform first-aid procedures. The next group contrasts Category II emergencies versus other emergencies and again Category II emergencies have a higher mean FAPI score again indicating that the more serious injuries are likely to have first-aid procedures performed than those less serious. The next group combines Category I and Category II emergencies and indicates a similar result. The following group indicates those cases in which the police officer was on the scene (police intervention period or PIP) one minute or less versus those cases in which the officer was on the scene greater than one minute. It is seen that the mean FAPI score is significantly higher in those cases in which the officer was on the scene greater than one minute versus those cases in which he was on the scene a minute or less. This indicates that the officer is more likely to perform first aid given a greater amount of time at the scene. The next group compares a PIP of one minute with those cases of two minutes. This again indicates that with only one minute more at the scene, the officer is more likely to perform first aid and hence have a higher mean FAPI score as is demonstrated. The comparisons of scores higher than two minutes are not significant indicating that one minute versus two minutes or more at the scene appears to provide the real difference in whether an officer will perform first aid or not. The likelihood of delivering first aid at the scene, therefore, does not continue to become greater as the time in which the officer spends at the scene becomes greater.

The relationship between the Police Task Performance Index (PTPI) and the First Aid Performance Index (FAPI) was studied with various statistical techniques. It appears that there is a positive correlation between FAPI scores and PTPI scores; however, these relationships could not be further defined. It appears then that the positive correlation between FAPI score and PTPI score precludes the hypothesis that a police

officer who scores high on the police related tasks associated with his duties would score low on the first-aid tasks. The PTPI scores followed the same pattern as the FAPI scores, namely that the scores were considerably lower than anticipated.

Table 45

FAPI WITH OTHER VARIABLES

Variable	Cases	Mean FAPI	Significance
Med Assocs.	444	15.0	P < .06
None	642	12.9	
Medical	1043	12.2	P < .001
Traffic	234	18.4	
Phone	389	16.9	P < .001
Fire	753	10.6	
Category I	99	23.5	P < .001
Other	1249	12.8	
Category II	457	16.8	P < .001
Other	891	12.0	
Category I or II	508	16.8	P < .001
Other	840	11.7	
PIP = 1	279	9.88	P < .001
Greater	1069	14.6	
PIP = 1	279	9.88	P < .034
PIP = 2	204	13.2	

Summary of Police First-Aid Performance

In summary, it is seen that the first-aid tasks in which the officers perform at the scene seem to be those in which first-aid equipment is generally not needed. It was also shown that 38 percent of the cases in which the officer arrived first on the scene represented Category I or II conditions. Therefore, a significant number of serious emergencies were being encountered by officers who arrived first at the scene. It was also shown that 64 percent of the cases in which the officers arrived first did not have first aid performed by the officer. It was also shown that the performance of first aid by the officer (and hence a higher FAPI score) was more likely for traffic accidents versus other medical conditions, more likely for serious medical conditions versus those which were less serious, and more likely when the police intervention period is greater than one minute versus those in which the officer arrived less than one minute before other emergency resources.

It was also seen that the first-aid form appeared to be incorrectly filled out in several cases. An analysis of the first-aid forms indicated that the police officer did not completely fill out the form and hence was likely to have a lower score on the FAPI than he would have otherwise had.

Relationship Between FAPI and Officer Attitudes

As described in Chapter V, a file was developed containing 166 entries, each entry representing an officer. This file included the average FAPI score, the average PTPI score, and a set of factor scores for each officer which were discussed in Chapter IV. These factor scores represent relationships among individual attitude questions, and as such, are a quantitative measure of individual officer attitudes. One research question formulated early in the project was whether a relationship existed between officer attitudes and beliefs concerning the performance of first aid and actual officer first=aid performance as determined by the FAPI score. Also of interest was the relationship between the PTPI score and the FAPI score. The statistical technique of discriminant analysis appeared to be appropriate in this particular example and two groups among the 166 officers were identified: (1) 51 officers or 30.7 percent which had an average FAPI score of 0, and (2) 115 officers or 69.3 percent which had an FAPI score of greater than 0. It should be noted that these scores are the average scores of all officer cases which were reported. Therefore, in all the cases which the individual officer reported, 51 officers had a 0 score on each of the cases in order to average 0 for an FAPI score.

The objective of discriminant analysis is to classify objects by a set of independent variables into one of two or more mutually exclusive and exhaustive categories (Morrison, 1969, pp.156). In the case of the police officers, the two mutually exclusive and exhaustive categories are those officers who had an average FAPI score of 0 (Category I) and those officers who had an FAPI score of greater than 0 (Category II). Therefore, the two categories are divided between those officers who reported doing no first aid and those officers who performed first aid regardless of the score made while accomplishing first aid. The approach to analysis of officer performance and particularly the relationship between performance and officer attitudes followed that of Frank, et. al. (1965, pp. 254). This procedure consisted of randomly assigning individual

officers to two separate and distinct groups. The first group would be used to develop the discriminant model, and the second group would be used by the model to classify officers in one of two categories and thus determine the validity of the model. This procedure avoids the introduction of bias associated with using the same data to create the model that are used in subsequent classification to determine how well the model discriminates among categories. Five different replications of this procedure were performed, each replication having a different random selection of cases among the 166 officers.

It was found while examining the relationships among many independent variables and the FAPI score that three variables appeared to be most effective in discriminating among officers in terms of first-aid performance. Two of these variables were factor scores. The first variable represented officer "confidence" and is associated with Questions 4, 7, and 11 in Section II of the Attitude Questionnaire which is included in the Appendix. The other variable is termed officer "prestige" and is associated with Questions 59, 60, and 61 of Section IV of the Attitude Questionnaire. The third independent variable of significance was the PTPI score which measured the performance of the police officer in non-first aid tasks at the scene of the emergency prior to the arrival of the EMS unit. (The PTPI score is explained in detail in Chapter III.)

The analysis of two sets of variables is described in the following paragraphs. The first set included the independent variables of confidence and prestige, and the second set included PTPI score as well as confidence and prestige. In each of the five replications for each set, a random sample of officers was used to create the discriminate scores and the second set of officers was used to determine the validity of the discriminant model. For example, Table 46 demonstrates the validation sample for Replication 1. It is noted that 80 officers were classified using the independent variables of confidence and prestige. It is seen that 12 of 31 cases were correctly classified as Category I (no first-aid score) or 38.7 percent correctly classified as Category I. This is compared to 21 out of 80 cases or 26.2 percent which would be expected to be classified by chance alone. For the average of five replications using only variables of confidence and prestige as defined by the factor scores, 52.5 percent of the cases were correctly classified as Category I versus 32.9 percent which would be expected by chance alone.

It is also seen in Table 46 that 52 (12 + 40) of 80 cases or 65 percent of all cases were correctly classified during Replication 1. The average of all replications was 69.1 percent of cases correctly classified.

Table 46

VALIDATION SAMPLE--REPLICATION 1
CLASSIFIED

		1	2	Totals
	1	12	9	21
Actual	2	19	40	59
Totals		31	49	80

Table 47 summarizes the relationship between FAPI and officer attitudes as defined by the two sets of independent variables. In the first set of variables under the validation sample, it is seen that the average percent of correct classifications was 69.1 percent. The proportional chance criterion (the percent of cases which could be expected by chance alone) as defined by Morrison (1969, pp. 158) is 55.8 percent. Using the "T" statistic as defined by Frank, et. al. (1965, pp. 253), the value of "T" is 2.55 with a significance less than 0.05. When the third independent variable, PTPI is added, it is noted in Table 47 that the percent of correct classifications is then 70.8 versus the proportional chance criterion of 55.8 percent of correct classifications based upon chance alone. The "T" statistic in this case is 2.87 with a significance less than 0.01.

Discriminant analysis thus demonstrates quantitatively that a relationship exists between actual officer first-aid performance as defined by the average FAPI score for each of the 166 officers and the independent variables of confidence and prestige (defined by factor scores derived from the attitude questionnaire) and the third independent variable, PTPI (the score of non-first aid tasks performed at the scene). It is seen that while knowing the scores of each officer regarding confidence and prestige, the discriminate analysis technique can predict whether an officer will perform first aid or not with 69.1 percent accuracy. With the additional variable, PTPI, the percent of correct classifications is approximately 71 percent.

Attitudes of Public Emergency Access

The final section of this chapter concerns the assessment of public attitudes regarding use of police as an emergency resource. While not

Table 47

RELATIONSHIP BETWEEN FAPI AND OFFICER ATTITUDES

Variables	Replication	Analysis Sample			Validation Sample		
		Percent Correct Classifications	Value of	Signif.	Percent Correct Classifications	Value of	Signif.
Confidence Prestige	1	70.9			65.0		
	2	74.0			61.4		
	3	66.7			76.2		
	4	70.5			68.2		
	5	62.4			77.8		
	Average	69.0	2.00	$p < .05$	69.1	2.55	$p < .05$
	Av. Observations	(85)			(81)		
Confidence Prestige PTPI	1	72.1			66.2		
	2	74.0			61.4		
	3	69.1			74.1		
	4	74.4			72.7		
	5	72.9			77.8		
	Average	72.0	2.71	$p < .01$	70.8	2.87	$p < .01$
	Av. Observations	(85)			(81)		

measuring police performance directly, this analysis provides valuable insights into the potential of using police as first responders.

Two telephone surveys consisting of over 500 calls each were conducted to determine the emergency aid-seeking behavior of the general public in the Atlanta metropolitan area including DeKalb County. Each survey included two seminars, one requesting information regarding unconsciousness (UNC) and the other concerning automobile accidents (AUTO). The two questions were: (1) "If a neighbor was knocked unconscious and did not regain his senses, who would you call?" and (2) "If someone was seriously injured in a car accident in front of where you live, who would you call?"

Table 48 summarizes the results of the two surveys for two counties in the Atlanta area--Fulton and DeKalb. Fulton County utilizes ambulance services which are run by both private companies and by public hospitals with no involvement by the fire department in EMS activity. DeKalb County utilizes the highly-publicized fire department as the dominant responder for emergency calls with a minor role played by private and hospital services. These trends can be seen in the public call response by county in Table 48. For example, 60.6 percent of the respondents listed ambulance or hospital (AMB-HOSP) as the choice of contact in the Unconscious Case (UNC) for Survey 1 in Fulton County whereas 51.3 percent listed the Fire Department in DeKalb County for UNC.

Table 48

EMERGENCY AID-SEEKING BEHAVIOR BY COUNTY
(Numbers listed are percent)

Survey	Survey 1				Survey 2			
County	Fulton		DeKalb		Fulton		DeKalb	
Scenario	UNC	AUTO	UNC	AUTO	UNC	AUTO	UNC	AUTO
Police	14.2	40.1	12.5	34.2	13.7	36.3	10.6	25.2
Fire	9.8	2.5	51.3	35.3	7.0	5.2	47.2	40.7
AMB-HOSP	60.6	51.6	26.4	27.8	55.2	47.4	24.0	25.2

There are several areas of significance in terms of call behavior to police seen in this study. First, there is a considerable difference in the percentage of calls to police for the UNC versus AUTO. Calls to police were about three times as frequent for AUTO cases for both surveys and in both counties. This indicates that there are some emergency situations in which the public is more likely to call police regardless

of the type of EMS organization available or the level of publicity. It is suspected that cases involving some criminal activity would also display this trend (e.g., an injury involving a rifle or gun). It is also seen that the police call percentages for UNC and the percentages for AUTO are both fairly constant across both surveys and both counties. This indicates only a minor effect of a highly publicized EMS service in changing police calling behavior even though the effect is major in terms of the distribution of calls to FIRE versus AMB-HOSP.

It is therefore seen that the public looks to the police as an emergency resource. This tendency varies with the type of emergency situation based on the view of the public regarding the role of the police. Regardless of EMS organization and publicity, the police will continue to be called in many emergency situations and as such can and should utilize first aid skills as first responders.

CHAPTER VII

CONCLUSIONS

The following section summarizes the general conclusions of the research project. This is followed by a proposed implementation plan which should provide useful information for decision-makers who are considering implementing the MAV concept.

General Conclusions

The research has indicated that the MAV concept is indeed feasible and can be operated with considerable success within the community and at a modest cost. Six specific areas of the MAV study are summarized below including (1) response to medical emergencies, (2) performance of first aid, (3) the first aid role, (4) conflicts with other duties, (5) community coordination, and (6) resource requirements.

Response to Medical Emergencies

With respect to the quickness of response, it was found that police typically can and do arrive on the scene prior to the arrival of an ambulance in many cases. The study showed that police could have been on the scene prior to EMS in 66 percent of the cases if the dispatch of EMS and police had been simultaneous. However, in only 35 percent of the cases did police actually arrive prior to EMS.

The amount of time on the scene which the officer has prior to the arrival of EMS was also found to be significant in terms of the potential of rendering first aid. Had there been simultaneous response, the police officer could have been on the scene at least two minutes in 56 percent of the cases or at least four minutes in 35 percent of the cases. However, the police were actually on the scene for at least two minutes in only 28 percent of the cases due to the dispatch delay.

Since the police already routinely respond to traffic accidents and violent-related incidents in which first aid is required, and since they are often the first to arrive on the scene, the performance of first aid by the officer is indeed important.

Performance of First Aid

With respect to performance, the amount of first aid delivered by the officers in the study group were uniformly low. This appeared

to be related to the availability of highly sophisticated EMS resources in the study site. For a high number of non-serious cases, the police tended to wait for ambulance personnel to take care of less serious emergencies, but rendered care immediately in life-threatening situations. The study showed a significantly higher level of performance for the more serious emergencies. The serious emergencies represented 38 percent of the total cases in which the officer arrived prior to the EMS unit.

The First Aid Role

Acceptance of the first aid role as part of the police officer's overall duties is an important point to consider. Behavioral implications may possibly be the most critical factors to consider when implementing the MAV concept. Police officers must be motivated to perform first aid and must consider emergency medical services as part of their primary police role if the MAV concept is to be successful. Behavioral surveys conducted during the project indicated that the police in the study group supported the MAV concept and were willing to perform basic first aid. However, this attitude was not uniformly shared by all officers.

Highlights of the behavioral study included the following points:

> There was no perceived conflict between officers and EMTs. The officers did not view their work as an infringement upon EMTs. The officers did not agree that first aid creates too much work. There was strong feeling that police first aid provides more rapid first aid care and better emergency care.
>
> There was strong disagreement with the proposition that only EMTs should deliver emergency care. There was likewise strong agreement that the idea of police rendering first aid is a good one. First aid training was strongly felt to be a real personal asset which was not limited to the job. While officers were not sure that their ability to give first aid could be used more than it currently is, there is decidedly strong agreement with the proposition that police cars ought to be dispatched at the same time as ambulances to a medical emergency.

The study also showed that a relationship existed between actual officer first-aid performance (defined by the score received based upon first aid performed) and officer attitudes (derived from the attitude

questionnaire). Thus, officer attitudes were found to be statistically related to actual first aid performed.

Conflicts With Other Duties

Performance of first aid tasks did not appear to be significantly related to a conflict with traditional law enforcement duties. This may be due in part to the notion that the police officer's first responsibility is to the victim, regardless of whether or not the police officer has first aid training. Thus, training police officers in first aid gives the officer the capability to effectively handle situations which he frequently encounters in conjunction with his traditional law enforcement duties.

Community Coordination

It was found that inter-agency communication and cooperation are very important aspects in implementing the MAV concept. Conflict between agencies who render emergency medical care can have a pronounced effect on the effectiveness of the MAV concept. In addition, when different agencies are responsible for responding to emergencies, it is essential that responsibilities be specified in detail and that all agencies are aware of their respective roles.

From a telephone survey of public emergency aid-seeking behavior, it was found that in approximately 10 to 15 percent of medical emergencies, the public is likely to call the police for assistance. This increases to 25 to 40 percent for emergency conditions requiring police involvement such as vehicular accidents involving emergencies according to the survey. Actual study call data showed that percentage to be even higher at 61 percent. Thus, the police are serving as an emergency medical resource based upon the willingness of the public to call.

Resource Requirements

With regard to resource requirements associated with implementation of the MAV concept, delivery of first aid was not perceived as being "extra work" for the officer. In addition, it was found that in order to provide the basic stabilizing care in a first responder capacity, the police officer needs little equipment. A good first aid kit in the trunk of each vehicle represents a valuable asset but was not used heavily. A training program at the level of 40 hours appears

to be appropriate. This will require considerable officer release time for departments having many officers to train. Another consideration is periodic retraining of officers needed in order to insure that the officers maintain their first aid skills. Refresher training at six-month intervals should be planned in order to review the basic stabilization skills.

Implementation Plan

This research project has developed information which is useful in considering implementation of the MAV concept in other settings. The following issues should be addressed in making the decision to implement the MAV concept and in subsequent implementation of this program:

1. In a setting which is considering implementation of the MAV concept, the average response time for the EMS unit and the average response time for police vehicles should be compared. If the response time difference for the EMS unit is two minutes or longer, then this setting could benefit from the MAV concept.

2. The dispatch system for EMS vehicles and the dispatch system for police vehicles should be studied to determine the best method of linking these two communication centers together. The MAV concept is most effective when a simultaneous dispatch of police and EMS vehicles is accomplished. Thus, both dispatch centers should work in harmony toward transferring calls to each other.

3. It is vital that the MAV concept be supported--and hopefully even initiated--from high police department officials. Without the enthusiastic support of the police chief and other high-ranking police officials, the program is likely to be ineffective. Specific areas of support include the following:

    a. Money for equipment and for training should be available in the police department budget.

    b. Release time should be given for first-aid training of the officers as part of their on-duty time.

    c. Periodic retraining time (e.g., six-month intervals) needs to be available and this basic commitment should be made at the beginning by police department officials.

4. The support from the high-ranking EMS officials is also vital to the MAV concept. This might include: (1) the fire chief for an EMS system operated by the fire department, (2) the

owners and operators of the ambulance company for a private company system, or (3) hospital administration and ambulance administration for a hospital based or other public ambulance operation.

5. A determination should be made of the general willingness of the police officer to take on this role of providing first aid service in addition to his other routine duties. The officers for which the MAV concept is to be considered should already be routinely happy with department operations and have a strong allegiance to the police chief and other police administration.

6. Public support and interest in the implementation of the MAV concept should be sought through local community leaders and leaders within the health care community such as physicians, hospital administrators and other groups.

7. Implementation of the MAV concept should include good community awareness. It is vital that the public know that this is a police department function so that good cooperation from the public will be forthcoming. This awareness should be developed through the various local news media. Good community awareness will produce broad-based public support.

8. It is vital in the implementation of the MAV concept that a strong spirit of team cooperation be emphasized between the police officers and EMS personnel. This team cooperation can be enhanced by mutual understanding of what the role of each group is in delivering emergency care. Various programs should be undertaken which will enchance good team cooperation and mutual respect for each department. Such programs may include police officers taking periodic rides with ambulance personnel, various forms of training interactions such as guest speakers from each agency, group functions in which the personnel from each organization get to know each other better, and such similar activities. Good team cooperation will only be possible if the role of each agency is very clearly and specifically defined and the personnel of both agencies are intimately aware of the relationship of those roles.

The implementation of the MAV concept will greatly depend upon community interest and leadership. The public will have to perceive the need and the police and EMS personnel will have to understand the importance of such a program. Communities in which the EMS response time is especially long (e.g., rural areas) have the most to benefit from this concept. A properly implemented first-responder program should be a needed addition to an existing EMS system.

APPENDICES

GROUP CONSENSUS QUESTIONNAIRE--R1

GEORGIA INSTITUTE OF TECHNOLOGY

HEALTH SYSTEMS RESEARCH CENTER

ATLANTA, GEORGIA 30332

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GROUP CONSENSUS QUESTIONNAIRE
DEVELOPMENT OF NON-MEDICAL TASKS AND ENVIRONMENTAL FACTORS

This activity is part of the research for the federally-funded project, "Evaluation of the Role of Police in the EMS System," being conducted by the Health Systems Research Center (HSRC) of Georgia Tech. This particular phase of the project is directed toward identifying the various non-medical tasks that a police officer performs at the scene of a medical emergency. In addition, it is desired to identify those situational, or environmental, factors that influence the performance of certain tasks.

Each of you has been chosen to participate on an expert panel in order to assist in the development and refinement of a "non-medical tasks" list and an "environmental factors" list. The HSRC project staff has developed preliminary "tasks" and "factors" based upon an extensive literature review and discussions with various members of the Department. These lists will serve as initial input for your consideration.

In order to facilitate an orderly flow of information within the panel, a structured group opinion method known as the Delphi technique will be utilized. The Delphi technique employs questionnaires to obtain information from individual panel members. The questionnaires are filled out independently and no discussion between panelists is allowed. After the questionnaires are completed, individual responses are combined and a "group response" is compiled. Subsequently, this group response and any pertinent individual comments are "fed back" to the individual panel members together with a second questionnaire. Given this new information, panelists are given an opportunity to revise or refine their previous responses. This process of successive questionnaires followed by feedback is continued until relative agreement is reached.

Although no discussion among questionnaire participants is permitted at this point, questions concerning any aspect of this study may be directed to either Julian Pittman or Charlie Thomason at HSRC. The HSRC telephone number is 894-4553.

Thank you for your assistance.

GROUP CONSENSUS QUESTIONNAIRE
DEVELOPMENT OF NON-MEDICAL TASKS AND ENVIRONMENTAL FACTORS
ROUND ONE OCTOBER 6, 1975

*** *PLEASE READ ENTIRE QUESTIONNAIRE BEFORE RESPONDING* ***

Non-Medical Tasks

This part of the questionnaire contains a preliminary non-medical task list as compiled by members of the HSRC staff. It is desired to determine if these tasks adequately represent non-medical duties of a police officer at the scene of a medical emergency.

Several assumptions must be made in order to accurately delineate the set of tasks in which we are interested. These assumptions include:

1. The medical emergency is apparent to the officer upon arrival at the scene.

2. The tasks of interest are restricted to those performed at the scene of a medical emergency.

INSTRUCTIONS: For each of the following tasks, please indicate your assessment of the appropriateness of each by checking either the block marked "Appropriate" or "Inappropriate." If you regard a task as "Inappropriate," please state your reasons. In addition, for those "Inappropriate" responses, please suggest a modified task statement (if possible) that you consider to be more appropriate. (For ease of reference, several tasks are delineated as parts of broader, categorical tasks. In those instances, please indicate your assessment of the broad tasks as well as specific sub-tasks.)

- *Traffic Control.* Establishment and maintenance of vehicular movement, or cessation of movement, as indicated (e.g., open emergency lanes for entry or exit of emergency vehicles; redirect or stop traffic flow; etc.)

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

- *Crowd Control.* Activities related to the management and dispersal of persons at the scene.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

- *Communication.* Notification to headquarters, fire department, wreckers, and other agencies of special situational conditions and requirements (e.g., requests for assistance; initial notification of medical emergency).

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

- *Investigation.* Refers to those preliminary tasks associated with the determination of the existence of a crime.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

a. Identification of victims, suspects, and witnesses.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

b. Interrogation of victims, suspects, and witnesses.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

c. *Search of appropriate parties.*

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

- *Assistance to Uninjured Parties.*

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

a. *Referral.* Tasks related to informing uninjured parties of where to go or who to see for additional help.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

b. *Provide transporation.*

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

c. *Arrange for transportation.*

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

d. *Exchange information.* Assistance to parties regarding the exchange of incidental information not related to any subsequent criminal action (e.g., assisting parties to exchange insurance information).

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

e. *Assume or arrange for the custody of minors left unattended as a result of the medical emergency.*

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

f. Reassurance.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

- *Criminal Action.* Activities leading to the subsequent prosecution of a suspected lawbreaker.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

a. Apprehension.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

b. Arrest.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

c. Citation.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

- *Preservation of the Scene.* Maintenance of the status quo at the scene of suspected criminal activity (e.g., establishment of perimeter; protection of evidence).

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

- *Protection of injured persons and their property*. Activities related to the prevention of further injury to emergency victims and/or damage to or removal of their property.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

- *Reporting*. Those activities dealing with the composition and completion of required reports at the scene (e.g., incident report; traffic report).

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications:_____

_____

_____

a. Obtain information/statements.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

b. Preparation of written documentation.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons:_____

_____

_____

Revisions/Modifications:_____

_____

_____

- *Evacuation.* Removal of persons from an area of imminent danger.

( ) Appropriate ( ) Inappropriate

Explanation/Reasons: _____

_____

_____

Revisions/Modifications: _____

_____

_____

INSTRUCTIONS: Now that you have evaluated and modified the preliminary tasks, do you think any additional tasks should be added? If so, please describe those tasks below and state your reasons for each addition.

Task to be Added	Reason

Continued

Task to be Added	Reason

Environmental Factors

This part of the questionnaire contains a preliminary list of environmental factors that are thought to influence the performance of certain non-medical (as well as medical) tasks at the scene of a medical emergency. The presence or absence of these factors at the scene presumably will dictate (in part) the course of action a police officer should pursue. It is desired to determine if these preliminary environmental factors are appropriate.

INSTRUCTIONS: For each of the following major factors (e.g., "Traffic Conditions"), please indicate your assessment of the appropriateness of each by checking either the block marked "Appropriate" or "Inappropriate." (1) If you regard a major factor as "Inappropriate," please state your reasons and suggest a related alternative factor, if possible. In addition, suggest a set of appropriate sub-factors (e.g., high traffic density--freeway, high traffic density--commerical, etc. for the major factor "Traffic Conditions") and proceed directly to the next major factor (i.e., "Off-Road Locations"). (2) However, if you regard a major factor as "Appropriate," please assess the appropriateness of the accompanying set of sub-factors (e.g., high-traffic density--freeway, high traffic density--commerical, etc.), suggesting modifications and revisions as necessary. As before, please state your reasons for any modifications.

- *Traffic Conditions.*

( ) Appropriate ( ) Inappropriate

***Begin** here if you responded "Inappropriate."*

Explanation/Reasons:_____

_____

_____

Alternative Factors and Sub-Factors:_____

_____

_____

Begin here if you responded "Appropriate."

a. High traffic density--freeway
b. High traffic density--commercial
c. High traffic density--residential
d. High traffic density--rural
e. Low traffic density--freeway
f. Low traffic density--commercial
g. Low traffic density--residential
h. Low traffic density--rural

( )
Appropriate
Subfactors

( )
Inappropriate
Subfactors

Explanation/Reasons:_____

_____

_____

Alternative Sub-Factors:_____

_____

_____

- *Off-Road Locations.*

( )
Appropriate

( )
Inappropriate

Begin here if you responded "Inappropriate."

Explanation/Reasons:_____

_____

_____

Alternative Factors and Sub-Factors:_____

_____

_____

Begin here if you responded "Appropriate."

a. Private residence
b. Public building--congested
c. Public building--not congested
d. Outside areas--congested
e. Outside areas--not congested

( )
Appropriate
Subfactors

( )
Inappropriate
Subfactors

Explanation/Reasons:_____

_____

_____

Alternative Sub-Factors:_____

_____

_____

- *Type of Response.*

( ) Appropriate ( ) Inappropriate

Begin here if you responded "Inappropriate."

Explanation/Reasons:_____

_____

_____

Alternative Factors and Sub-Factors:_____

_____

_____

Begin here if you responded "Appropriate."

a. Call
b. Non-call

( ) Appropriate Subfactors ( ) Inappropriate Subfactors

Explanation/Reasons:_____

_____

_____

Alternative Sub-Factors:_____

_____

_____

- *Crime Factors.*

( ) Appropriate ( ) Inappropriate

Begin here if you responded "Inappropriate."

Explanation/Reasons:_____

_____

_____

Alternative Factors and Sub-Factors:_____

_____

_____

Begin here if you responded "Appropriate."

a. Crime possible/probable
b. Felony in progress
c. Misdemeanor in progress
d. Crime--after the fact
e. No Crime

( ) Appropriate Subfactors ( ) Inappropriate Subfactors

Explanation/Reason:_____

_____

_____

Alternative Sub-Factors:_____

_____

_____

- *Public Safety Factors (e.g., power line down, gas line break, etc.).*

( ) Appropriate ( ) Inappropriate

Begin here if you responded "Inappropriate."

Explanation/Reasons:_____

_____

_____

Alternative Factors and Sub-Factors:_____

_____

_____

INSTRUCTIONS: Now that you have evaluated and modifed the preliminary factors, do you think any additional factors should be considered? If so, please indicate those factors (and sub-factors, if appropriate) below and state your reasons for each addition.

Factor to be Added	Reason

Continued

Factor to be Added	Reason

Date

Signature

Appendix B

GROUP CONSENSUS QUESTIONNAIRE--R2

GROUP CONSENSUS QUESTIONNAIRE
DEVELOPMENT OF NON-MEDICAL TASKS AND ENVIRONMENTAL FACTORS
ROUND TWO OCTOBER 15, 1975

*** *PLEASE READ ENTIRE QUESTIONNAIRE BEFORE RESPONDING* ***

Non-Medical Tasks

The following table summarizes the results of your assessment of the appropriateness of the non-medical tasks presented in Round One. (Recall that these tasks represent the non-medical duties of a police officer at the scene of a medical emergency.)

Non-Medical Tasks	Group Response	
	Appropriate	Inappropriate
1. Traffic Control.	100%	0%
2. Crowd Control.	100%	0%
3. Communication.	87.5%	12.5%
4. Investigation.	100%	0%
a. Identification of victims, suspects, and witnesses.	100%	0%
b. Interrogation of victims, suspects, and witnesses.	100%	0%
c. Search of appropriate parties.	100%	0%
5. Assistance to Uninjured Parties.	100%	0%
a. Referral.	100%	0%
b. Provide transportation.	87.5%	12.5%
c. Arrange for transporation.	100%	0%
d. Exchange information.	100%	0%
e. Assume or arrange for the custody of minors left unattended as a result of the medical emergency.	100%	0%
f. Reassurance.	100%	0%
6. Criminal Action.	100%	0%
a. Apprehension.	100%	0%
b. Arrest.	100%	0%
c. Citation.	100%	0%

Continued

Non-Medical Tasks	Group Response	
	Appropriate	Inappropriate
7. Preservation of the Scene.	100%	0%
8. Protection of injured persons and their property.	100%	0%
9. Reporting.	100%	0%
a. Obtain information/statements.	100%	0%
b. Preparation of written documentation.	100%	0%
10. Evacuation.	100%	0%

INSTRUCTIONS: Based upon the group's overall response, and individual comments, a reassessment of the following tasks is in order. Please review the representative individual and staff comments corresponding to each task and indicate your reassessment of these tasks by checking either the block marked "Appropriate" or "Inappropriate."

- *Communication.* Notification to headquarters, fire department, wreckers, and other agencies of special situational conditions and requirements (e.g., requests for assistance; initial notification of medical emergency).

Representative Individual Comment:

1. Not always notified of emergency call received by EMS within a reasonable time.

Staff Comment:

1. Communication, in this instance, is meant to be that initiated by the officer on the scene.

Reassessment: ( ) Appropriate ( ) Inappropriate

- *Assistance to Uninjured Parties.*

b. Provide transporation.

Representive Individual Comments:

1. If no other means are available.
2. Only in case of an emergency.

Staff Comment:

1. We are interested in only those tasks which a police officer performs prior to the arrival of an ambulance.

Reassessment: ( ) Appropriate ( ) Inappropriate

Environmental Factors

The following table summarizes the results of your assessment of the appropriateness of the environmental factors presented in Round One. (Recall that these factors influence the types and priorities of police action to be taken at the scene of specific emergencies.)

Environmental Factors	Group Response	
	Appropriate	Inappropriate
1. Traffic Conditions	100%	0%
a. High traffic density--freeway	100%	0%
b. High traffic density--commercial	100%	0%
c. High traffic density--residential	100%	0%
d. High traffic density--rural	100%	0%
e. Low traffic density--freeway	100%	0%
f. Low traffic density--commercial	100%	0%
g. Low traffic density--residential	100%	0%
h. Low traffic density--rural	100%	0%
2. Off-Road Locations	87.5%	12.5%
a. Private residence	87.5%	12.5%
b. Public building--congested	87.5%	12.5%
c. Public building--not congested	87.5%	12.5%
d. Outside areas--congested	87.5%	12.5%
e. Outside areas--not congested	87.5%	12.5%
3. Type of Response	62.5%	37.5%
a. Call	62.5%	37.5%
b. Non-call	62.5%	37.5%
4. Crime Factors	100%	0%
a. Crime possible/probable	100%	0%
b. Felony in progress	100%	0%
c. Misdemeanor in progress	100%	0%
d. Crime--after the fact	87.5%	12.5%
e. No Crime	100%	0%

Continued

Environmental Factors	Group Response	
	Appropriate	Inappropriate
5. Public Safety Factors (e.g., power line down, gas line break, etc.).	100%	0%

INSTRUCTIONS: Based upon the group's overall response and individual comments, a reassessment of the following factors is in order. Please review the representative individual and staff comments corresponding to each factor and indicate your reassessment of these factors by checking either the block marked "Appropriate" or "Inapprorpiate."

- *Off-Road Locations.*

Representative Individual Comment:

1. Not considered a major factor due to the relatively low speed.

Staff Comment:

1. This category represents situations in which traffic is not necessarily involved.

Reassessment: ( ) Appropriate ( ) Inappropriate

- *Type of Response.*

Representative Individual Comments:

1. Police actions remain basically the same in any type of response (call versus non-call.)
2. Same type of police actions regardless of being called or not called.
3. Response to be made in a non-emergency manner if no serious injuries are reported.

Staff Comment:

1. We are interested in whether or not police action on the scene changes as a result of being dispatched to the scene versus arriving on the scene while on regular patrol.

Reassessment: ( ) Appropriate ( ) Inappropriate

- *Crime Factors.*

d. Crime--after the fact.

Representative Individual Comment:

1. This sub-factor would indicate the same types of action as sub-factor "a" (crime possible/probable).

Staff Comment: None

Reassessment: ( ) Appropriate ( ) Inappropriate

INSTRUCTIONS: The following additional environmental factor was suggested in Round One. Please indicate your assessment of its appropriateness. If your answer is "Appropriate," please suggest any sub-factors (e.g., rain, fog, etc.) which you consider to be applicable.

- *Weather Conditions.*

Reason for addition:

1. Statistics show that where there is rain/fog coupled with high speed limits and traffic congestion, accidents increase drastically.

Staff Comment:

1. The consideration of the environmental factor "Traffic Conditions," with its various levels of traffic density, might negate the need to include "Weather Conditions."

Reassessment: ( ) Appropriate ( ) Inappropriate

Suggested Sub-factors (e.g., rain, fog, etc.) _____

_____

_____

Evaluation

1. Please indicate the degree of your satisfaction with the non-medical task list:

( )	( )	( )	( )	( )
Very Dissatisfied	Mildly Dissatisfied	Adequately Satisfied	Very Satisfied	Extremely Satisfied

2. Please indicate the degree of your satisfaction with the environmental factors list:

( )	( )	( )	( )	( )
Very Dissatisfied	Mildly Dissatisfied	Adequately Satisfied	Very Satisfied	Extremely Satisfied

General Comments

This completes the development of the non-medical tasks list and the environmental factors list. The next phase of the research will involve the development of task priorities for specific situations (Many of you have already been thinking in this direction as indicated by the excellent comments made in the first questionnaire. Those comments will be extremely helpful in determining the relative importance of various tasks). We will ask for your assistance in defining these priorities at a later date.

Again, thank you for your participation and cooperation.

_____ _____

Date Signature

Control:_____

GEORGIA TECH FIRST AID STUDY

This questionnaire is part of a study being conducted by the Health Systems Research Center of Georgia Tech of the delivery of first aid by the DeKalb County Police Department. Your participation in the study is greatly appreciated.

Individual responses will not be seen by any member of the DKPD or other related agencies. Only the staff of the Health Systems Research Center will have access to the questionnaires.

Your name is needed only so that we may relate future information which may be requested from you to the opinions which you express here.

We are interested in what you think about various aspects of Police work which are related to the delivery of first aid by the DKPD. We will use the biographic data only for statistical analysis. The remaining sections will ask you to express your opinion or feeling about a statement. *There is no right or wrong answer.* Please mark the answers you think best reflect how you feel. Please mark an answer to every question.

(Please note that "EMT" refers to the Emergency Medical Technician who operates a rescue unit of the DeKalb Fire Department.)

Control No. _____

Name _____

Badge No. _____

This portion will be torn off by the Georgia Tech staff to assure that the questionnaire remains confidential.

There are two types of scales to indicate your answers, running from 1 to 7.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Very Little	1	2	3	4	5	6	7	Very Much

On the "Strongly Disagree--Strongly Agree" scale, "4" can be considered "neutral" or indicates that you have no definite feelings one way or the other about the question. Numbers lower than "4" indicate varying levels of *disagreement* with "1" indicating the strongest *disagreement*. Likewise, numbers higher than "4" indicate varying levels of *agreement* with "7" being the highest.

On the "Very Little--Very Much" scale, a "1" means "very little" and a "7" means "very much" in regard to the question. A "4" on this scale indicates a moderate amount between "very little" and "very much" as opposed to "neutral or no opinion" on the previous scale.

Below are several examples.

Circle the number closest to how you feel:

1. How much do you like ice cream?

Very Little 1 2 3 4 5 (6) 7 Very Much

2. Ice cream should be made the national dessert.

Strongly Disagree 1 2 3 (4) 5 6 7 Strongly Agree

The person who answered these questions liked ice cream (a "6" in question 1), but had no opinion (or was neutral) about making ice cream the national dessert (a "4" in question 2).

1. Age (check one):

____(1) 20-24
____(2) 25-29
____(3) 30-34
____(4) 35-39
____(5) 40-49
____(6) 50-59
____(7) 60+

2. Sex: ____(1) Male
____(2) Female

3. Education:

____(1) Some High School
____(2) High School
____(3) Business/Technical School
____(4) Some College
____(5) Associate's Degree
____(6) Bachelor's Degree
Field_____
____(7) Work Beyond Bachelor's Degree

4. Birthplace: ____(1) DeKalb
____(2) Fulton, Clayton, Cobb, Douglas, Gwinnett, Rockdale
____(3) Georgia (other than above)
____(4) FLA, ALA, SC, NC, TENN
____(5) MISS, LA, TEX, KY, ARK, VA
____(6) OTHER STATE/COUNTRY

5. What is your rank in the DKPD?
____(1) Patrolman
____(2) Corporal
____(3) Sergeant
____(4) Leutenant
____(5) Captain
____(6) Major

6. Number of years in your current rank?

____(1) 0-½
____(2) ½-1
____(3) 1-2
____(4) 2-3
____(5) 3-4
____(6) 4-5
____(7) 5-10
____(8) 10-15
____(9) 15+

7. Number of years in the DKPD?

____(1) 0-½
____(2) ½-1
____(3) 1-2
____(4) 2-3
____(5) 3-4
____(6) 4-5
____(7) 5-10
____(8) 10-15
____(9) 15+

8. Total number of years in police work?

____(1) 0-½
____(2) ½-1
____(3) 1-2
____(4) 2-3
____(5) 3-4
____(6) 4-5
____(7) 5-10
____(8) 10-15
____(9) 15+

9. Number of years since last first aid course?

____(1) 0-1
____(2) 1-2
____(3) 2-3
____(4) 3-4
____(5) 4-5
____(6) 5-10
____(7) 10-15
____(8) 15+
____(9) Never had course

10. Other medical training? What Year? (11-14)

Armed Forces Medic	____(1)	_____
First Aid Course	____(2)	_____
Own Study	____(3)	_____
Other (list)		
_____	____(4)	_____
_____	____	_____

15) Are other members of your family or close friends nurses, EMTs, or other medically trained personnel? Yes____(1) No____(2)

If yes, what is their relationship to you and what is their profession?

(Circle One)

16) ____(1) SPOUSE
____(2) SPOUSE'S FAMILY
____(3) OWN FAMILY
____(4) FRIEND

(17) RN (1), EMT (2), MD (3), OTHER (4) ____
RN (1), EMT (2), MD (3), OTHER (4) ____
RN (1), EMT (2), MD (3), OTHER (4) ____
RN (1), EMT (2), MD (3), OTHER (4) ____

Section 2

1. How often do your fellow officers tell you how well you perform first aid?

Very Seldom 1 2 3 4 5 6 7 Very Often

2. How often do EMTs (Fire Department) tell you how well you perform first aid?

Very Seldom 1 2 3 4 5 6 7 Very Often

3. How much does administering first aid increase the prestige of the Police?

Very Little 1 2 3 4 5 6 7 Very Much

4. How frequently do others continue the first aid procedures that you start?

Very Seldom 1 2 3 4 5 6 7 Very Often

5. How much is the first aid work challenging to you?

Very Little 1 2 3 4 5 6 7 Very Much

6. How much is the first aid work exciting to you?

Very Little 1 2 3 4 5 6 7 Very Much

7. How often are you able to tell when you have done a good job of administering first aid without being told?

Very Seldom 1 2 3 4 5 6 7 Very Often

3. How much do you have the opportunity to perform many different first aid procedures?

Very Little 1 2 3 4 5 6 7 Very Much

). How much is the first aid work a hindrance to performing other duties?

Very Little 1 2 3 4 5 6 7 Very Much

). Do you have a feeling of accomplishment when you administer first aid?

Very Seldom 1 2 3 4 5 6 7 Very Often

. How much does the general public see your first aid work as more helpful than other duties?

Very Little 1 2 3 4 5 6 7 Very Much

Section 2--Cont'd

12. How much do you like administering first aid?

Very Little 1 2 3 4 5 6 7 Very Much

13. How much more at ease do you feel in accident situations because of your first aid training?

Very Little 1 2 3 4 5 6 7 Very Much

Comments: _____

_____

_____

Section 3

7. Would you recommend first aid training be continued? Yes___(1)No___(2)

8. How much of the first aid training has been useful?

Very Little 1 2 3 4 5 6 7 Very Much

9. How much of the first aid training was busywork?

Very Little 1 2 3 4 5 6 7 Very Much

0. How much of the first aid training have you used?

Very Little 1 2 3 4 5 6 7 Very Much

1. How much of what you have needed did first aid training cover?

Very Little 1 2 3 4 5 6 7 Very Much

2. Which of the following do you feel you should have had more first aid training in? (Circle only one)

(01) artificial respiration	(05) deep cuts	(09) puncture wounds
(02) bandaging	(06) drug overdose symptoms	(10) rescue/extrication
(03) bleeding control	(07) heart attack	(11) shock
(04) CPR	(08) obstetrics	(12) splinting

(13) other (name)_____

4. How competent were your first aid instructors?

Not Very Competent 1 2 3 4 5 6 7 Very Competent

5. How interested were your first aid instructors in your performance?

Very Little 1 2 3 4 5 6 7 Very Much

6. How much more time should be spent on first aid training?

None 1 2 3 4 5 6 7 Very Much

7. . . . . CPR?

None 1 2 3 4 5 6 7 Very Much

8. . . . . bandaging?

None 1 2 3 4 5 6 7 Very Much

9. . . . . splinting?

None 1 2 3 4 5 6 7 Very Much

Section 3--Cont'd

30. How much more time should be spent on recognizing drug overdose symptoms?

None 1 2 3 4 5 6 7 Very Much

31. How much more time should be spent on bleeding control?

None 1 2 3 4 5 6 7 Very Much

32. . . . . artificial respiration?

None 1 2 3 4 5 6 7 Very Much

33. . . . . extrication?

None 1 2 3 4 5 6 7 Very Much

34. . . . . burns?

None 1 2 3 4 5 6 7 Very Much

35. . . . . puncture wounds?

None 1 2 3 4 5 6 7 Very Much

36. How much are your first aid skills up-to-date?

Very Little 1 2 3 4 5 6 7 Very Much

37. How much would periodic reviews of first aid skills be useful?

Very Little 1 2 3 4 5 6 7 Very Much

38. How much additional training in first aid would be useful?

Very Little 1 2 3 4 5 6 7 Very Much

39. Do you feel that Police officers should receive the same training that EMTs receive in emergency medical care?

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

40. What was the best part of first aid training? (Circle only one)

(01) artificial respiration	(05) deep cuts	(09) puncture wounds
(02) bandaging	(06) drug overdose symptoms	(10) rescue/extricatio
(03) bleeding control	(07) heart attack	(11) shock
(04) CPR	(08) obstetrics	(12) splinting

(13) other (name) _____

42. What part of first aid training have you used most? (Circle only one)

(01) artificial respiration	(05) deep cuts	(09) puncture wounds
(02) bandaging	(06) drug overdose symptoms	(10) rescue/extricatic
(03) bleeding control	(07) heart attack	(11) shock
(04) CPR	(08) obstetrics	(12) splinting

(13) other _____

Section 3--Cont'd

14. What part of first aid training received most emphasis from instructors? (Circle one)

(01) artificial respiration	(05) deep cuts	(09) puncture wounds
(02) bandaging	(06) drug overdose symptoms	(10) rescue/extrication
(03) bleeding control	(07) heart attack	(11) shock
(04) CPR	(08) obstetrics	(12) splinting
(13) other (name)_____		

16. If the department had periodic retraining of first aid skills, what would you most like to review? (Circle only one)

(01) artificial respiration	(05) deep cuts	(09) splinting
(02) bandaging	(06) drug overdose symptoms	(10) puncture wounds
(03) bleeding control	(07) heart attack	(11) rescue/extrication
(04) CPR	(08) obstetrics	(12) shock
(13) other (name)_____		

omments: _____

_____

_____

_____

Section 4

8. Because of the Police first aid program the Police have too much to do at the scene of an accident.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

9. Because of the Police first aid program a Police officer's work is too much like that of an EMT.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

0. Policemen do not have time for necessary review in first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. Because of the Police first aid program EMTs have less work at accidents where Police give first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

2. EMTs have to correct Police first aid errors.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

3. Because of the Police first aid program EMTs have more work to do.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

4. When the Police give first aid there is one more thing that the community can criticize the Police about.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

5. Doctors and nurses do not usually know that DKPD Police officers are trained in first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

6. Doctors and nurses seem to feel that first aid given by Police officers hurts the victim instead of helping him.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. Accident victims are not likely to want Police first aid service.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The community will think that the Police are able to give good first aid care.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

ection 4--Cont'd

9. The Police are more respected by the community because of their first aid work.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

0. First aid service by the Police is a reason for having a higher Police wage scale.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. Public awareness of the DKPD first aid training program will improve the relationship that the Police have with the community.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

2. Because of Police first aid training the Police and the EMTs do not work well together.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

3. EMTs lose a little community respect when the Police give first aid before the EMTs arrive at an accident.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

4. Transfer of the victim from Police first aid care to the EMT is not smooth.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

5. Accident victims receive quicker first aid care when the Police as well as EMTs give emergency medical care.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

6. Police first aid attention is usually unneeded since an EMT can be at the scene of an emergency in a very few minutes.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. There are fewer traffic deaths because of Police first aid work.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. Because of Police first aid an emergency victim receives better care than he would otherwise.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

mments: _____

_____

_____

Section 5

. First aid should be given by the first trained person to arrive at the scene of an emergency.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. The ability of the Police to give first aid seems to be used less than it could be.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. Police cars ought to be dispatched at the same time as an ambulance and pumper in life-threatening emergencies.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. The Police probably should be relieved of first aid duties in order to better carry out their other duties at the scene of an emergency.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. Too much is demanded of the Police in giving first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. EMTs ought to be the only people to give first aid in medical emergencies.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. First aid given by Police results in better care for emergency victims.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. It is a good idea for Police officers to give first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. EMTs seldom ask for help which they need.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. First aid duties often keep me from my non-medical police duties in an emergency.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

. I have a feeling of relief when I see that an EMT has already arrived and begun first aid treatment at the scene of an emergency.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Section 5--Cont'd

12. Accident victims really need very little help at the scene of an accident other than that given by an EMT.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

13. The DKPD gets good publicity when a Policeman gives first aid at an accident.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

14. My first aid training is of no real use outside of Police work.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

15. I am sometimes uneasy giving first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

16. Usually I don't like to give first aid if I can avoid it.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

17. I might find it hard to give first aid to someone whom I had just shot.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

18. If an EMT is on the way and a victim's injuries are not serious I like to do the normal Police work and wait for the EMT to give first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

19. Even if there are severe injuries it may be better to wait for the EMT so that a more experienced person may begin treatment as soon as he arrives.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

20. I enjoy giving first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

21. I start first aid procedures as soon as I arrive at the scene of an emergency.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

22. It would be hard to give first aid to someone who had assaulted me and whom I had injured in protecting myself.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Section 5--Cont'd

123. My fellow officers enjoy their first aid work.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

124. There is community support for the first aid work being done by the DKPD.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

125. I am frequently uneasy about giving first aid.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Comments: _____

_____

_____

_____

Section 6

. How much does your immediate superior comment on your performance of first aid duties?

Very Little 1 2 3 4 5 6 7 Very Much

. How much regard does the administrative staff seem to have for first aid ability?

Very Little 1 2 3 4 5 6 7 Very Much

. How important is the first aid program to the objectives of the DKPD?

Very Little 1 2 3 4 5 6 7 Very Much

How much does the administrative staff know about problems of administering first aid in the field?

Very Little 1 2 3 4 5 6 7 Very Much

How much do your superior officers regard first aid administration as an additional work burden?

Very Little 1 2 3 4 5 6 7 Very Much

mments: _____

_____

_____

_____

Section 7

. How much do you feel a part of the DKPD team?

Very Little 1 2 3 4 5 6 7 Very Much

. How much prestige does the DKPD have with other police departments?

Very Little 1 2 3 4 5 6 7 Very Much

. How much do you feel your job contributes to the work of the DKPD?

Very Little 1 2 3 4 5 6 7 Very Much

. How much do your working conditions help you do a good job?

Very Little 1 2 3 4 5 6 7 Very Much

. Do you feel you have good equipment, supplies, and materials?

Very Little 1 2 3 4 5 6 7 Very Much

. How much teamwork is there with your fellow officers?

Very Little 1 2 3 4 5 6 7 Very Much

. How much prestige does your job have outside the DKPD?

Very Little 1 2 3 4 5 6 7 Very Much

. How much prestige does your job have within the DKPD?

Very Little 1 2 3 4 5 6 7 Very Much

. How much work do you have to do?

Very Little 1 2 3 4 5 6 7 Very Much

. How much overall cooperation is there within the department?

Very Little 1 2 3 4 5 6 7 Very Much

Do you feel the DKPD conducts good future planning?

Very Little 1 2 3 4 5 6 7 Very Much

How much freedom to make decisions in your work is there?

Very Little 1 2 3 4 5 6 7 Very Much

ection 7--Cont'd

9. How much opportunity do you have to use your special skills and abilities?

Very Little 1 2 3 4 5 6 7 Very Much

). Beyond the DKPD police academy, how much DKPD sponsored training for your job have you received?

Very Little 1 2 3 4 5 6 7 Very Much

1. How much opportunity for education or training to keep abreast of your field is there?

Very Little 1 2 3 4 5 6 7 Very Much

2. How much opportunity in your job is there to develop new skills and knowledge?

Very Little 1 2 3 4 5 6 7 Very Much

3. How much information about your job responsibilities do you get from your supervisor?

Very Little 1 2 3 4 5 6 7 Very Much

. How much information does the DKPD provide about its own operations?

Very Little 1 2 3 4 5 6 7 Very Much

. How much satisfaction do you get from the type of work you do?

Very Little 1 2 3 4 5 6 7 Very Much

. How high is the pay for the work which you do?

Very Little 1 2 3 4 5 6 7 Very Much

nments: _____

_____

_____

Telephone Interview Survey

(1-3) _____ Phone Number

(8-9) _____ Interviewer

_____ Date

_____ Time

(A) What county do you live in?

(18)
1 Fulton
2 DeKalb
3 Cobb
4 Gwinnett
5 Rockdale
6 Douglas
7 Clayton

(B) If a neighbor were knocked unconscious and did not regain his senses, who would you call?

(19-20) List in numerical order.
1 doctor
2 hospital (_____)
3 Grady
4 police
5 fire department
6 ambulance service(_____)
7 operator
8 other (_____)
9 MEMS

(C) If someone were seriously injured in a car accident in front of where you live, who would you call?

(21-22) List in numerical order.
1 doctor
2 hospital (_____)
3 Grady
4 police
5 fire department
6 ambulance service (_____)
7 operator
8 other (_____)
9 MEMS

(D) Have you ever been in an emergency of any kind involving yourself or someone else?

(23)
0 No: Go to question "N"
1 Yes

(E) Was a phone call made to get help?

(26)
0 No: Go to question "N"
1 Yes

(F) How many calls were made before help came?

(27) _____

(G) Who was called (first, second) (28)_____ (31)_____

(H) How did you get the number? (29)_____ (32)_____

(I) During the call did you talk to more than one person?

(30) (33)

How many? 1 No ___Yes 1 No ___Yes

(J) Do you have a list of emergency numbers available to you?

(34) 0 No: Go to question "R"
1 Yes

(K) Where is the list?

(35) 1 in telephone book
2 on telephone
3 next to telephone
4 carry with me in pocket
5 other (_____)

(L) What agencies are on the list?

(36) 1 doctor
(37) 2 hospital (_____)
(38) 3 Grady
(39) 4 police
(40) 5 fire department
(41) 6 ambulance service (_____)
(42) 7 poison center
(43) 8 Rape Crisis Center
(44) 9 MEMS
(45) 0 other (_____)

(M) Where did you get the list?

(46) 1 doctor
2 pharmacy
3 in phone book
4 in phone book with additions by self
5 fire department
6 police
7 self made
8 in mail
9 other (_____)

(N) Have you ever heard of MEMS? of Metropolitan Emergency Medical Service?

(47) 1 No
2 Yes

(48) If yes, do you know the phone number?
1 No
2 Yes

(49) If yes, what is the number?
1 231-2323
2 other wrong number

* * * * * * * * * * *

(O) How long have you lived in the metropolitan Atlanta area?
(57-58) _____years

(P) What was the last grade you completed in school?
(61-62) _____grade (1-12)
(63-64) _____college (number of years)
(65) College degree?
___No
___Yes

(Q) What year were you born?
(66-69) _____

(R) What race are you?
(74)
1 White, Caucasian, European
2 Black, Negro, African
3 American Indian
4 Spanish American, Latin American, Puerto Rican, Cuban
5 Oriental, Indian, Chinese, Japanese, Vietnamese
6 other
9 refused to answer

(S) What is your sex?
(75)
1 Male
2 Female

Comments:

_____

_____

_____

_____

Appendix D
DATA FILE STRUCTURE

First Aid Form Coding Key

Patient Condition	54
Condition at Scene	55
Non-medical Tasks	56
First Aid Performed	57
Injury Location	58
Number of Columns	59-60
Number of Injuries	61-62

CN=1 2-6 DATE [ ][ ][ ] mo day year 7 Day Code

STREET ADDRESS OR LOCATION

TIME (APPROX.) [ ] :

NUMBER NEEDING FIRST AID [ ] 8

9-14 CASE NO. [ ][ ][ ][ ][ ][ ]

15-17 BADGE [ ][ ][ ]

18-19 EMS UNIT [ ][ ][ ] (for DeKalb)

Check type of ambulance on scene

2 ☐ 1 ☐ 0 ☐ 20

Was ambulance on scene when you arrived?

1 ☐ 0 ☐ 21

Did ambulance transport victim?

1 ☐ 0 ☐ 22

PATIENT CONDITION
(check one or more)

BREATHING
63 ☐
64 ☐

PULSE
65 ☐
66 ☐

CONSCIOUSNESS
67 ☐
68 ☐

BLEEDING
69 ☐
70 ☐
71 ☐

SKIN COLOR
72 ☐
73 ☐
74 ☐
75 ☐
76 ☐
77 ☐
78 ☐
79 ☐
80 ☐
81 ☐
82 ☐
83 ☐
84 ☐ FRACTURES
85 ☐
86 ☐
87 ☐
88 ☐
89 ☐
90 ☐
91 ☐
92 ☐
93 ☐
94 ☐
95 ☐ OTHER (NAME.) _____

CONDITIONS AT SCENE
(check all that apply)

LOCATION OF INCIDENT
96 ☐
97 ☐
98 ☐

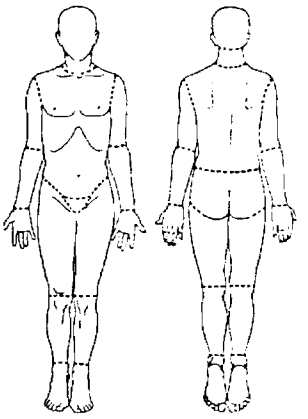
VEHICLES INVOLVED (for traffic accident only)
99 ☐ 100 ☐ 101 ☐

PERSONS AT SCENE
102 ☐ 103 ☐
104 ☐ ☐

CRIME FACTORS 105
106 ☐ 109 ☐
107 ☐ 110 ☐
108 ☐

See Larger Figure

INJURY LOCATION
for broken bones, MARK: X
for bleeding, CIRCLE: O
for burns, CROSSHATCH: #



NON-MEDICAL TASKS PERFORMED
(check as appropriate)

BEFORE arrival of EMS ↓ AFTER arrival of EMS ↓

111 ☐ 2 ☐
113 ☐ 4 ☐
115 ☐ 6 ☐
117 ☐ 8 ☐

119 ☐ 0 ☐
121 ☐ 2 ☐

INVESTIGATION
123 ☐ 4 ☐
125 ☐ 6 ☐
127 ☐ 8 ☐

CRIMINAL ACTION
129 ☐ 0 ☐
131 ☐ 2 ☐

ASSISTANCE TO UNINJURED
133 ☐ 4 ☐
135 ☐ 6 ☐
137 ☐ 8 ☐
139 ☐ 0 ☐
141 ☐ 2 ☐
143 ☐ 4 ☐

REPORTING
145 ☐ 6 ☐
147 ☐ 8 ☐

FIRST AID PERFORMED BY YOU *(check one or more)*

149 ☐
150 ☐
151 ☐
152 ☐

ARTIFICIAL RESPIRATION
153 ☐
154 ☐
155 ☐
156 ☐
157 ☐
158 ☐

CONTROL BLEEDING
159 ☐
160 ☐
161 ☐
162 ☐
163 ☐
164 ☐
165 ☐
166 ☐
167 ☐
168 ☐

169 ☐
170 ☐
171 ☐
172 ☐
173 ☐
174 ☐
175 ☐
176 ☐
177 ☐
178 ☐
179 ☐
180 ☐

COMMENTS
(Include brief description of event)

Dispatched	23-26
Arrived	27-30
Completed	31-34
Nature	35-36 37-38
Complainant	39-40
Remarks	40
Status	41-42
Unit	43-45
Census	46-50
Age	51-52
Race	W=2 B=1 Other=0
Sex	M=1 F=0

HSRC 3/76

First Aid Form Coding Key (Cont'd)

Card Space (Cols.): 35-36

Nature

41/43
41/43
41/43

66 or 48
66 or 48

52 or 66
66
62 or 66
50
66 or 51
66

47 or 43 or 66
47 or 43 or 66

66
66

Card Space (Cols.): 37-38

Remarks

01 I
02 Possible I
03 "Non I"

04 Person down or injured
05 Child down or injured

06 O.D.
07 H.A. (Heart Attack)
08 O.B.
09 Person shot
10 Person cut or stabbed
11 Choking

12 Child hit by auto
13 Person hit by auto

14 Seizures
15 Difficult breathing

99 Other

Card Space (Col.): 39

Complainant

1. Phone
2. FD or FD 10-76
3. Atlanta P.D.
4. Other P.D. (ie Chamblee, Decatur, Etc.)
5. C.B. Radio

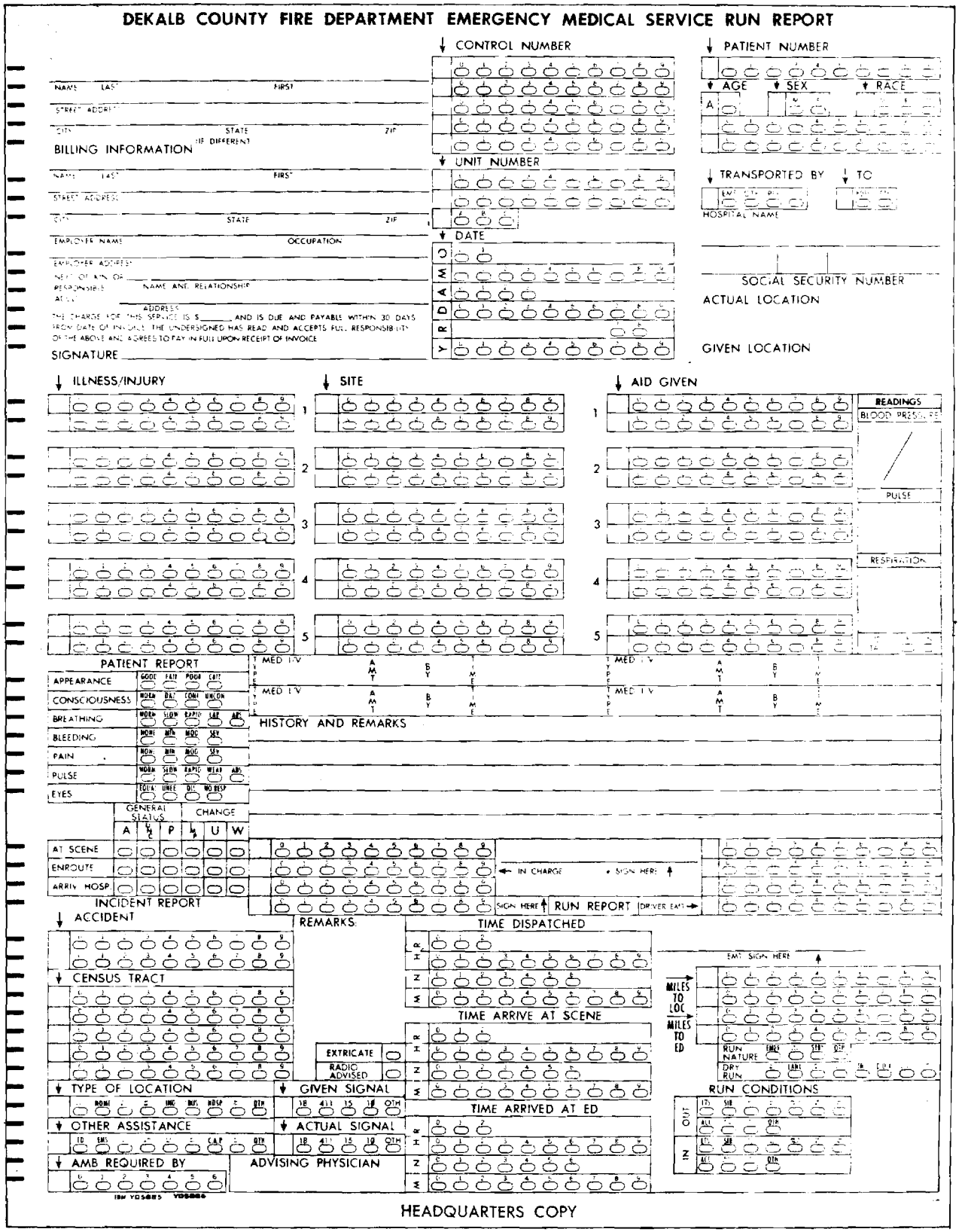
9. Other

40 Category 1,2,3,4
41 Status: i.e. 63,65,66

Code last digit if 60's
OR for other use digit "8"

50-51 Age
52 Race--W=2;B=1;Other=0
53 Sex--Male=1;Female=0

EMS Run Report



DEKALB COUNTY FIRE DEPARTMENT EMERGENCY MEDICAL SERVICE RUN REPORT

CONTROL NUMBER

PATIENT NUMBER

NAME LAST FIRST

STREET ADDRESS

CITY STATE ZIP

BILLING INFORMATION IF DIFFERENT

NAME LAST FIRST

STREET ADDRESS

CITY STATE ZIP

EMPLOYER NAME OCCUPATION

EMPLOYER ADDRESS

NEXT OF KIN OR RESPONSIBLE ADULT NAME AND RELATIONSHIP

ADDRESS

THE CHARGE FOR THIS SERVICE IS $_____ AND IS DUE AND PAYABLE WITHIN 30 DAYS FROM DATE OF INVOICE. THE UNDERSIGNED HAS READ AND ACCEPTS FULL RESPONSIBILITY OF THE ABOVE AND AGREES TO PAY IN FULL UPON RECEIPT OF INVOICE

SIGNATURE

UNIT NUMBER

DATE

AGE SEX RACE

TRANSPORTED BY TO

HOSPITAL NAME

SOCIAL SECURITY NUMBER

ACTUAL LOCATION

GIVEN LOCATION

ILLNESS/INJURY

SITE

AID GIVEN

READINGS

BLOOD PRESSURE

PULSE

RESPIRATION

T

PATIENT REPORT

APPEARANCE	GOOD	FAIR	POOR	CRIT	
CONSCIOUSNESS	NORM	DAZ	CONF	UNCON	
BREATHING	NORM	SHOW	RAPID	LAB	ABS
BLEEDING	NONE	MIN	MOD	SEV	
PAIN	NONE	MIN	MOD	SEV	
PULSE	NORM	SHOW	RAPID	WEAK	ABS
EYES	EQUAL	UNEQ	DIL	NO RESP	

GENERAL STATUS: A ½ P — CHANGE: ½ U W

AT SCENE						
ENROUTE						
ARRIV HOSP						

MED I.V. TYPE AMT BY TIME

MED I.V. TYPE AMT BY TIME

MED I.V. TYPE AMT BY TIME

MED I.V. TYPE AMT BY TIME

HISTORY AND REMARKS

IN CHARGE SIGN HERE

INCIDENT REPORT SIGN HERE RUN REPORT DRIVER EMT

ACCIDENT

REMARKS

TIME DISPATCHED

CENSUS TRACT

TIME ARRIVE AT SCENE

EXTRICATE

RADIO ADVISED

TYPE OF LOCATION

GIVEN SIGNAL

TIME ARRIVED AT ED

OTHER ASSISTANCE

ACTUAL SIGNAL

AMB REQUIRED BY

ADVISING PHYSICIAN

EMT SIGN HERE

MILES TO LOC

MILES TO ED

RUN NATURE

DRY RUN

RUN CONDITIONS

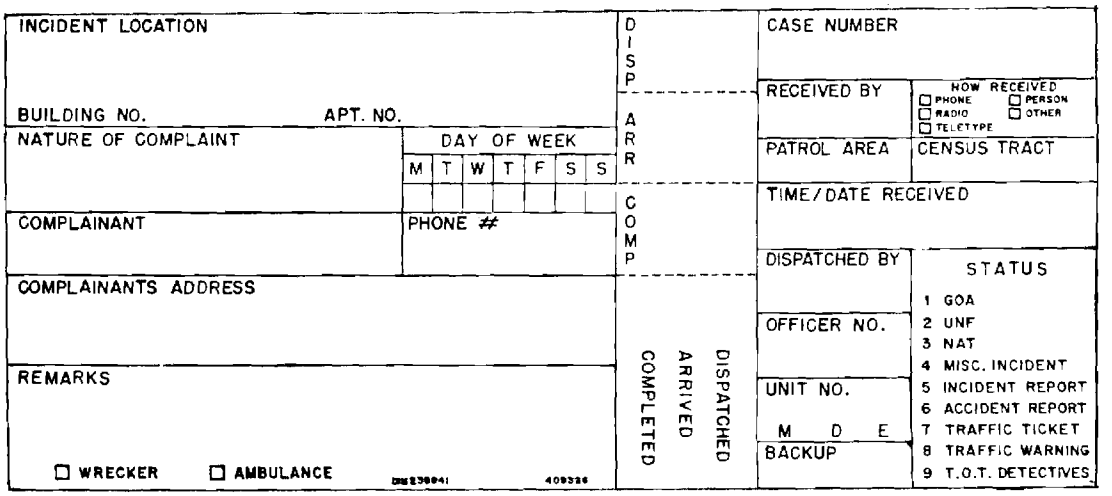
OUT

IN

IBM YD5885 YD5886

HEADQUARTERS COPY

Police Complaint Card

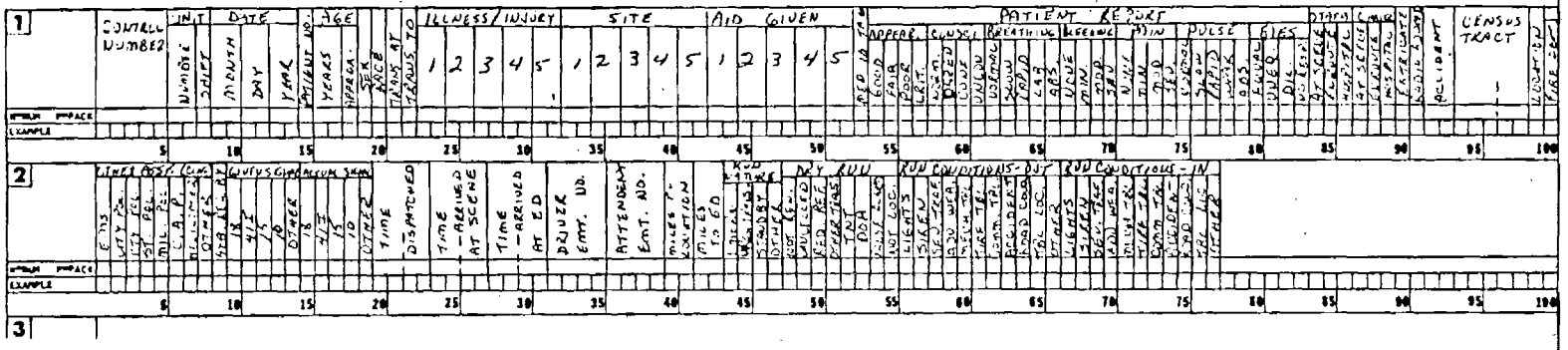


DEPARTMENT EMS
DATE ISSUED 2-[illegible]-75

FILE SPECIFICATIONS

DEKALB COUNTY
DATA PROCESSING
DEPARTMENT

	FILE NAME	RECORD TYPE	BLOCK & LENGTH	FILE SEQUENCE
1	EMS MASTER FILE/YTD EMS FILE	TAPE	10 X 107	
2				
3				
4				
5				

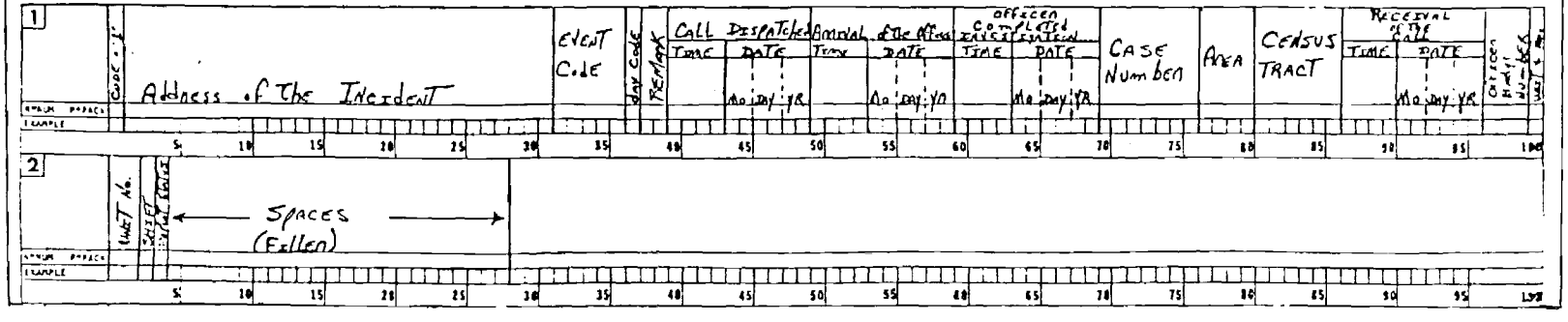


DEPARTMENT
DATE ISSUED June 30, 1975

FILE SPECIFICATIONS

DEKALB COUNTY
DATA PROCESSING
DEPARTMENT

	FILE NAME	RECORD TYPE	BLOCK & LENGTH	FILE SEQUENCE
1	3747 Police Dispatch File	Fixed-Tape	1 x 128	Not sequenced
2				
3				
4				
5				



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